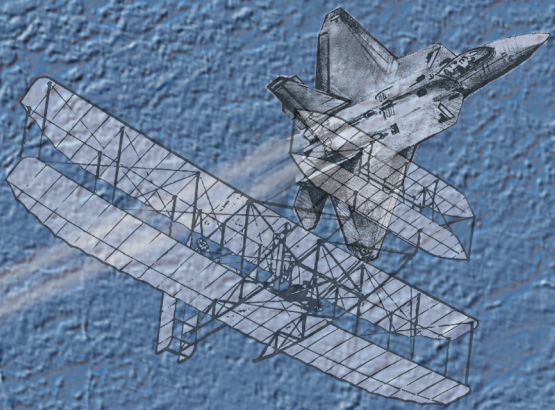
AIRMAN

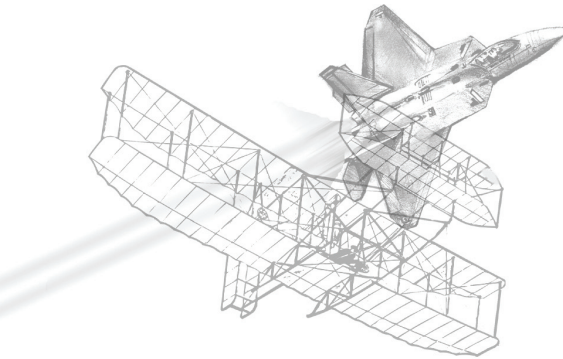
U.S. AIR FORCE



AF HANDBOOK 1

AIRMAN

U.S. AIR FORCE



SECOND EDITION • FEB 2007

Foreword

With the dawning of the 21st Century, America and the Air Force celebrated the Centennial of Flight, born of the vision and ingenuity of the Wright Brothers.

The advent of flight forever changed the world, giving us unprecedented access to air and space. From the Army Air Corps to the Army Air Forces, aviation changed the world and led to the birth of the United States Air Force.

We have a unique heritage and distinguished history. Our Air Force became and remains the world's premier air and space power because of our professional Airmen, our investment in technology, and our ability to operationally integrate our people and systems to deliver decisive effects globally for Combatant Commanders.

The Air Force's core values: Integrity, Service, and Excellence are essential to our continued success. These core values rest upon four pillars within each and every individual Airman—character, honor, personal integrity, and patriotism. As America's Airmen, we are expected to exhibit the highest standards at all times. Nothing less will suffice.

Air Force Handbook 1 reminds us of our past, reinforces where we are, and enables us to envision the future. As you read, take pride in being a member of the world's finest air and space force—second to none.

AIRMAN

This volume was created by
America's AIRMEN and dedicated to
future generations of AIRMEN

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AIR FORCE KNOWLEDGE

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Welcome from Secretary Wynne

As an Airman in the United States Air Force, you have taken an oath to support and defend the Constitution of the United States. The Nation depends on you to embody that oath despite the sacrifices and risks you must endure. By living up to our Core Values of Integrity First, Service Before Self, and Excellence in all we do, each Airman recognizes the seriousness of that oath and internalizes the level of trust our nation has in every member of our Air Force. As an integral member of the Joint Team, we are the worldís most dominant Air and Space force, and we are quickly gaining dominance in the new frontier of Cyberspace. Our culture is expeditionary, and innovatio n our hallmark. From the earliest days of flight, Airmen have continually pushed the boundaries of what was possible in Air and Space. Today, you stand on the shoulders of giants like Billy Mitchell, Hap Arnold, Benjamin O. Davis, Bennie Schriever, and John Levitow; Airmen who risked their reputations, careers and their lives to carry our Air Force to greater heights for the Nation. We are counting on you, the individual Airman, to embrace this heritage as you lead us to a future of limitless horizons.

Michael W. Wynne is the 21st Secretary of the Air Force. In this role, he is responsible for the affairs of the Department of the Air Force, including the organizing, training, equipping, and providing for the welfare of its nearly 370,000 men and women on active duty; 180,000 members of the Air National Guard and the Air Force Reserve; 160,000 civilians, and their families. As head of the Department of the Air Force, Secretary Wynne is responsible for its functioning and efficiency, the formulation of its policies and programs, and the timely implementation of decisions and instructions of the President of the United States and the Secretary of Defense. With an annual budget of approximately $110 billion, he ensures the Air Force can meet its current and future operational requirements.

Welcome from General Moseley

Congratulations on joining the United States Air Force! Your decision to become an Airman is an important one, and one that will shape the rest of your life. Whether you committed to the Air Force for a short time or intend to make it a career, you'll always be an Airman. And as an Airman, you should take great pride in putting on your uniform and daily serving the Nation in these important times. We are a Nation and an Air Force at war, so we will demand much of you. But I have no doubt in your ability to succeed, and to lead others in our team to succeed. You have joined a special team, one with a rich history, abiding core values, and a limitless horizon. This handbook will help you begin to learn, understand, and internalize the heritage, culture and doctrine of Airmen. Welcome to the finest Air Force on Earth!

General T. Michael Moseley is Chief of Staff of the U. S. Air Force, Washington, D. C. As Chief, he serves as the senior uniformed Air Force officer responsible for the organization, training and equipage of 710,000 active duty, Guard, Reserve and civilian forces serving in the United States and overseas. As a member of the Joint Chiefs of Staff, the General and other service chiefs function as military advisers to the Secretary of Defense, National Security Council, and the President.

Welcome from CMSAF McKinley

Welcome to the United States Air Force! Whether you come from a small town or a big city, joined for patriotic reasons or for education and training, and whether you plan to stay with us for 4 years or 24, you are now an important part of the world's greatest Air Force.

The USAF has a rich heritage, full of brave Airmen with vision and tenacity. As one of us, you will be an important part of shaping our future. Together as Airmen, we will serve our nation proudly. This handbook is designed to educate you about our culture and your new world as you begin this exciting journey.

Let me encourage you to step out smartly, get up to speed quickly, and enthusiastically embrace our core values of Integrity, Service Before Self, and Excellence. Your Nation is counting on you, and so are your fellow Airmen. We need your best efforts, and we are glad you're here!

Chief Master Sergeant of the Air Force (CMSAF) Rodney J. McKinley represents the highest enlisted level of leadership, and as such, provides direction for the enlisted corps and represents their interests, as appropriate, to the American public, and to those at all levels of government. He serves as the personal adviser to the Chief of Staff and the Secretary of the Air Force on all issues regarding the welfare, readiness, morale, and proper utilization and progress of the enlisted force. CMSAF Murray became the 15th chief master sergeant appointed to the highest noncommissioned officer position on 30 June 2006.

Civilian Air Chiefs

John D. Ryan	1918
F. Trubee Davison	1926-1932
Robert A. Lovett	1941-1946
W. Stuart Symington	1946-1947

Secretaries of the Air Force

W. Stuart Symington	1947-1950
Thomas K. Finletter	1950-1953
Harold E. Talbott	1953-1955
Donald A. Quarles	1955-1957
James H. Douglas, Jr.	1957-1959
Dudley C. Sharp	1959-1961
Eugene M. Zuckert	1961-1965
Harold Brown	1965-1969
Robert C. Seamans, Jr.	1969-1973
John L. McLucas	1973-1975
James W. Plummer (acting)	1975-1976
Thomas C. Reed	1976-1977
John C. Stetson	1977-1979
Hans M. Mark	1979-1981
Verne Orr	1981-1985
Russell A. Rourke	1985-1986
Edward C. Aldridge, Jr.	1986-1988
James F. McGovern (acting)	1988-1989
John J. Welch, Jr. (acting)	1989-1989
Donald B. Rice	1989-1993
Michael B. Donely (acting)	1993-1993
Sheila E. Widnall	1993-1997
F. Whitten Peters (acting)	1997-1999
F. Whitten Peters	1999-2001
Dr. Lawrence J. Delaney (acting)	2001-2001
Dr James G. Roche	2001-2005
Michael W. Wynne	2005-Present

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Capt Charles D. Chandler	1907-1910
Capt Arthur S. Cowan	1910-1911
Capt Charles D. Chandler	1911-1912
Lt Henry H. Arnold	1912-1913
Col Samuel Reber	1913-1916
Brig Gen George O. Squier	1916-1917
Lt Col John B. Bennet	1917
Brig Gen Benjamin D. Foulois	1917
Brig Gen Alexander L. Dade	1917-1918
Maj Gen William L. Kenly	1918-1919

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Maj Gen Mason M. Patrick	1921-1927
Maj Gen James E. Fechet	1927-1931
Maj Gen Benjamin D. Foulois	1931-1935
Maj Gen Oscar Westover	1935-1938
Gen Henry H. Arnold	1938-1946
Gen Carl A. Spaatz	1946-1947

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Gen Hoyt S. Vandenberg	1948-1953
Gen Nathan F. Twining	1953-1957
Gen Thomas D. White	1957-1961
Gen Curtis E. LeMay	1961-1965
Gen John P. McConnell	1965-1969
Gen John D. Ryan	1969-1973
Gen George S. Brown	1973-1974
Gen David C. Jones	1974-1978
Gen Lew Allen, Jr.	1978-1982
Gen Charles A. Gabriel	1982-1986
Gen Larry D. Welch	1986-1990
Gen Michael J. Dugan	1990-1990
Gen John M Loh (acting)	1990-1990
Gen Merrill A. McPeak	1990-1994
Gen Ronald R. Fogleman	1994-1997
Gen Ralph E. Eberhart (acting)	1997-1997
Gen Michael E. Ryan	1997-2001
Gen John P. Jumper	2001-2005
Gen T. Michael Moseley	2005-Present

CMSgts of the Air Force

Paul W. Airey	3 Apr 67 - 31 Jul 69
Donald L. Harlow	1 Aug 69 - 30 Sep 71
Richard D. Kisling	1 Oct 71 - 30 Sep 73
Thomas N. Barnes	1 Oct 73 - 1 Jul 77
Robert D. Gaylor	1 Aug 77 - 31 Jul 79
James M. McCoy	1 Aug 79 - 31 Jul 81
Arthur L. Andrews	1 Aug 81 - 31 Jul 83
Sam E. Parish	1 Aug 83 - 30 Jun 86
James C. Binnicker	1 Jul 86 - 31 Jul 90
Gary R. Pfingston	1 Aug 90 - 25 Oct 94
David J. Campanale	26 Oct 94 - 4 Nov 96
Eric W. Benken	5 Nov 96 - 30 Jul 99
Frederick Finch	2 Aug 99 - 28 Jun 02
Gerald R. Murray	1 Jul 02 - 30 Jun 06
Rodney J. McKinley	30 Jun 06 - Present

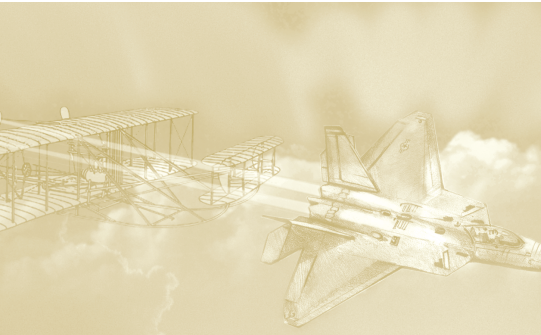
We Are America's Airmen

We are America's Airmen—a Total Force of active, Guard, Reserve, and civilian Patriots. We fight and win anywhere our Nation needs us. Expeditionary Airmen provide America air and space power to protect our nation and way of life.

Our United States Air Force reflects the vision of the founders of airpower. We foster ingenuity in the development of the world's most professional Airmen. Airmen are the heart and soul of our unique fighting force, and are identified by a proper noun—Airmen. We will continue to transition new technologies into joint warfighting systems and integrate our capabilities to produce decisive warfighting effects.

You have joined a team of Airmen who have a rich history, and play an unparalleled role in the defense of America. Our Air Force is the greatest air and space force in the world because of the generations of professional Airmen who devoted their lives to serving their country. Airmen today recognize and honor their historic achievements and unique contributions to fighting and winning America's wars.

Whether we are active duty, Guard, Reserve, or civilians, first and foremost, we are America's Airmen—confident in our ability to protect and defend the United States of America.



The United States Air Force Historical Perspective

by
Dr. John T. Farquhar

United States Air Force Academy
Department of History

Contributing Editors

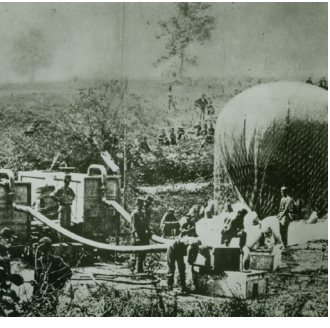
George W. Bradley III
AFSPC Historian

Introduction

As preparation for your entry into the Air Force, this section will introduce the Air Force mission and its evolution, the machines and technology associated with air and space flight, and, most important, the legacy of the men and women of the United States Air Force. By surveying the history of aviation, you will discover our heritage, appreciate Air Force traditions, and understand your role in our nation's defense.

The Dawn of Flight

The dream of flight recurs in myth and legend from ancient times, but not until two French brothers, Joseph Michel and Jacques Etienne Montgolfier, launched a hot-air balloon on 15 Oct 1783, with passenger Jean François Pilatre de Rozier, did man first "fly." The military potential of aviation was noted in 1794, when the French "Aerostatic Corps" balloons accompanied the armies of the French Revolution until 1798.



In September 1861, a "Balloon Corps" provided aerial observ-ation for the Union Army during the American Civil War. However, the early balloons proved fragile, vulnerable to weather, and of limited value.

Aviation languished in the United States, but in Europe, balloons, gliders and aerodynamics advanced rapidly. By 1853, Britain's Sir George Cayley created a glider with fixed wings, cambered airfoil, and horizontal and

vertical stabilizers. Continuing Cayley's work, German engineer Otto Lilienthal produced flying machines similar to today's hang gliders. From 1891 until his death five years later, Lilienthal greatly advanced aerodynamic theory. The publicity generated by Lilienthal spurred on imaginative people on both sides of the Atlantic, including Orville and Wilbur Wright.

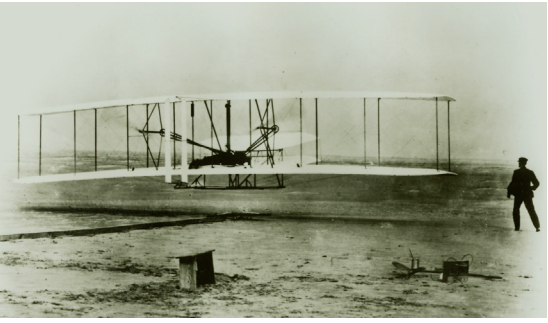
With the assistance of American Octave Chanute whose book, Progress in Flying Machines, provided their foundation in aeronautics, the Wrights furthered Lilienthal's experiments. From 1900 to 1902, the Wrights conducted over a thousand glides from Kill Devil Hills near Kitty Hawk, NC. After perfecting wing warping, elevators and rudders for control and a water-cooled engine, they attempted the first powered flight on 14 Dec 1903. On that try, the aircraft stalled upon takeoff and crashed three seconds later. Success came at 1035 on 17 Dec 1903, when Orville Wright flew 120 feet in 12 seconds. Alternating pilot duties, the brothers made three more flights with Wilbur flying 852 feet and staying aloft 59 seconds on the fourth attempt.

American military authorities rejected the Wrights' Flyer, reacting in part to the highly publicized failure of Samuel P. Langley's steam-powered "Aerodrome" in October 1903. Although a highly respected scientist and Secretary of the Smithsonian Institution, Langley and the Army were subjected to public ridicule and Congressional criticism for the "waste" of a $50,000 government grant. Only when President Theodore Roosevelt intervened was an aeronautical division established in the US Army's Signal Corps on 1 Aug 1907.

The Early Days of the U. S. Air Service
1907-1917

By December 1907, the new Army Air Service established

specifications for an American military aircraft. The flying machine had to carry two people, weighing 350 pounds, and fly for 125 miles at an average speed of 40 miles per hour (mph). The Air Service received 41 bids, but only one, submitted by the Wright brothers, produced a flyable aircraft. By September 1908, the Wright Type A Military Flyer flew for over an hour at a maximum altitude of 310 feet, carrying the first military



observer, Lt Frank P. Lahm. A subsequent test on 17 Sep 1908 resulted in Lt Thomas E. Selfridge's death as the first military aviation fatality. Still, on 30 Jul 1909, pilot Orville Wright and Lt Benjamin D. Foulois flew from Fort Myer to Alexandria, VA, at an average speed of 42.6 mph. On 2 August, the Army accepted the plane and awarded the Wrights $25,000, plus a $5,000 bonus.

The US Army Air Service's early operations were not promising. In October 1909, Wilbur Wright trained Lts Frank P. Lahm and Frederic E. Humphreys to fly, and on 26 Oct, they were the first Army pilots to solo. By 5 November, they had crashed the Army's plane. Within weeks, they were transferred out of aviation.

In March 1910, Lt Foulois received orders to become the Signal Corps' pilot. The Chief of the Signal Corps, Gen James Allen, told him, "Don't worry. You'll learn the techniques as you go along . . . just take plenty of

spare parts and teach yourself to fly."

US military aviation was falling behind Europe. By the end of 1911, the French had produced 353 aviators versus 26 American pilots, of whom only eight were military. By 1913, France and Germany each had spent $22 million on military aviation, Russia $12 million, and even Belgium $2 million, compared to just $430,000 for the United States.

America's first combat experience with aviation demonstrated the Air Service's ill preparedness. When Francisco "Pancho" Villa's Mexican forces raided Columbus, NM in March 1916, the Army's 1st Aero Squadron accompanied Gen John J. Pershing's expedition. The squadron under the command of Capt Foulois sought to provide aerial scouting for the ground forces. However, mountain weather,

dust, and extreme temperatures wreaked havoc with Foulois' underpowered, dilapidated Curtis JN-3 Jennies. After a month of operations, only two JN-3s were still flyable.

The First Air War

During the First World War, 1914-1918, aircraft and air warfare evolved. Observation, artillery spotting, and reconnaissance emerged as the airplane's most important war missions. By 1915, pursuit aircraft were developed to deny enemy use of the air. After early attempts to down enemies with handguns, French pilot Roland Garros attached steel plates to the propeller of his Morane-Saulnier Type L monoplane, enabling him to fire a machine gun through the propeller arc. He earned wide acclaim as the war's first "ace." When engine trouble forced Garros to land behind enemy lines on 19 Apr 1915, the Germans studied his innovation. Dutch-born Anthony Fokker then created the first true fighter plane, the Fokker Eindecker, using an interrupter gear to enable a machine gun to fire through the propeller. By the end of World War I, Airmen had pioneered most of to-day's aerial missions, in-cluding photographic reconnaissance, close air support for ground troops, battlefield interdiction, and strategic bombardment in both day and night operations. The German air service inaugurated long-range strategic bombardment as early as 1915 with its massive Zeppelin dirigibles.

Despite the importance of reconnaissance and artillery spotting, fighter pilots captured the public's imagination. Newspapers portrayed the daring, skill, and chivalry of the "knights of the air." Following Roland Garros, the French produced such aces as Rene Fonck with 75 kills, and Georges Guynemer, who totaled 54 aerial victories.

Like the Allies, Germany publicized "aces" as a means of fostering public support for the war effort. Germany's first ace, Max Immelmann developed the revolutionary technique that bears his name to reverse direction of an aircraft in flight. Perhaps the most famous ace of all, Manfred von Richtofen flew a scarlet Fokker triplane, which earned him the name, "the Red Baron." Shortly after his 80th victory, Richtofen was shot down and killed on 21 Apr 1918.

Not to be outdone by the French and Germans, Britain exulted in the exploits of fighter pilots. Britain's leading ace, with 73 kills, was Edward "Mick" Mannock, who was killed by groundfire while aiding a novice wingman.

Americans entered the ranks of aerial heroes even before the United States entered the war. The French air service established the Escadrille Americaine for American volunteers on 21 Mar 1916. Later renamed the Lafayette Escadrille, this squadron flew French Nieuport 17 fighters and provided valuable exper-ience when the U. S. entered the war.

French-born American Raoul Lufbery shot down 17 German planes before transferring to the American Air Service, where he commanded the famous "Hat in the Ring" 94th Aero Squadron before his death on 19 May 1918.

Of the 767 U. S. pilots and 481 observers in action in 1918, Capt Edward V. "Eddie" Rickenbacker and Lt Frank Luke, Jr. achieved the most fame. Rickenbacker was a renowned race car driver before the war. Older than most pilots, the 28-year old became America's "Ace of Aces" with 26 confirmed kills. Frank Luke was the only pilot awarded the Medal of Honor during the war (Rickenbacker would be awarded one in 1931). Known as the "Arizona Balloon Buster," Luke downed 14 German balloons and four aircraft in 17 days. His spectacular career ended on 29 Sep 1918 when, in a solo attack, he shot down three enemy balloons and two aircraft before enemy ground fire forced him down. Seriously wounded, he died with a pistol in his hand.

While he was not an ace, William "Billy" Mitchell emerged as one of the outstanding American air combat commanders of the war. Mitchell was the first Combined Forces Air Component commander as he directed British, French, and American airpower. Supremely confident about the efficacy of airpower, Mitchell sometimes clashed with his superiors, including

aviation pioneer Brig Gen Foulois. Nevertheless, Foulois recognized Mitchell's leadership and recommended him for the top combat position, Chief of Air Service, First Army. In September 1918, Mitchell massed 1,481 aircraft of American, French, British, and Italian units to support Gen Pershing's St. Mihiel offensive. Mitchell emphasized concentrated, mass attacks to overwhelm enemy airpower and punish German ground forces. In four days, Allied Airmen flew 3,300 combat sorties and dropped 75 tons of explosives. Lauded as a success by Gen Pershing, Mitchell refined his tactics during the Meuse-Argonne offensive of 26 Sep 1918, where 700 American aircraft faced 500 German planes. By 1918, based upon his outstanding performance directing Air

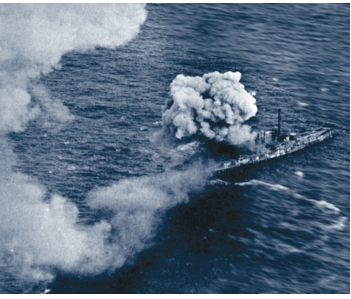
Service combat units over the Château-Thierry area, the St. Mihiel salient, and the Meuse-Argonne, Mitchell earned the Distinguished Service Cross for valor, and temporary promotion to brigadier general.

By the Armistice of 11 Nov 1918, airpower had contributed an important role to the Allied victory. Although observation, reconnaissance, and artillery spotting remained the most significant missions, close air support, interdiction, and strategic bombardment

showed promise. Eclipsing all other roles, the image of the glamorous fighter ace with his brightly painted aircraft, leather jacket, and flying scarf captured public attention. The US Army Air Service claimed 781 enemy aircraft and 73 balloons destroyed at a cost of 289 American aircraft and 48 balloons and 569 battle casualties.

Controversy and Records, 1920s Airpower

Convinced of airpower's potential as the primary component of national defense and a war-winning weapon, Mitchell aggressively promoted his cause to create an independent air force. Hoping to make it the nation's "first line of defense," Mitchell challenged the U. S. Navy by arguing that bombers rendered battleships obsolete. Reluctantly, the Navy had agreed to allow Mitchell to test his Martin MB-2 bombers against some ex-German battleships. On 21 Jul 1921, Mitchell's Airmen sank the 27,000-ton battleship Ostfriesland. Despite a four-layer armored hull and watertight compartments, the battleship sank in just 21 minutes, when struck by two 1,000-pound bombs. Although Mitchell failed to convince the War or Navy Departments, the bombing tests spurred the development of carrier-based aviation.



Frustrated by what he perceived as a lack of progress, Mitchell turned up the heat of his public statements. When the Navy airship Shenandoah crashed on 5 Sep

1925, Mitchell issued a press release charging the Navy and War Departments with "incompetency, criminal negligence, and almost treasonable administration of our national defense." During the ensuing court martial, Mitchell attempted to transform the trial into a public hearing on airpower. Found guilty of "conduct

of a nature to bring discredit upon the military service," the court sentenced Mitchell to a five-year suspension from the service without pay. On 1 Feb 1926, Col Mitchell (he twice served in the temporary grade of brigadier general during World War I and in the early 1920s) resigned from the Air Service to continue the fight for an independent air force. Until his death in 1936, Billy Mitchell fought tenaciously for his vision. He placed his indelible stamp on US air combat practice and doctrine with his emphasis on massed forces and offensive operations.

Mitchell's efforts produced some success for the fledgling Air Corps. The Air Corps Act of 1926 greatly improved the status of aviation within the Army. It transformed the Air Service into the Air Corps, provided representation on the General Staff, added an Assistant Secretary of War for Air, and promised expansion to a force of 1,650 officers, 15,000 enlisted men, and 1,800 serviceable aircraft within five years. However, funding never matched the goal established.

Budget cutbacks two years later, reduced the 1918 Air Service of 190,000 men to fewer than 20,000. Likewise, the $460 million allocated for military aviation in 1919

fell to $25 million in 1920. Even worse from a technology viewpoint, Congress demanded that new military aircraft use the surplus Liberty engines produced during the World War I buildup. Consequently, First World War vintage Curtiss Jennies and Liberty DH-4 bombers remained in service until the 1930s, despite technological advances in airframe and engine design.

On the other hand, a concerted effort to achieve records in speed, altitude, endurance, and other areas helped spur aviation advances in the 1920s. In September 1922, Lt James "Jimmy" Doolittle became the first man to fly across the United States in less than a day. Seven months later, Lts Oakley Kelley and John Macready flew a Fokker T-2 on the first non-stop transcontinental flight. On 6 April 1924, a team of Army pilots departed Seattle in four Douglas World Cruisers, christened the Chicago, Boston, Seattle, and New Orleans, in an effort to fly around the world. Although the Seattle and Boston were lost to a mountain crash and engine failure, respectively, the remaining aircraft completed the circuit 175 days later. In 1925, Jimmy Doolittle achieved further fame by winning the Schneider Trophy, an over-water seaplane race, and established a world

seaplane record at 245.71 miles per hour. Although less publicized, Doolittle also played a major role in the design and testing of instruments for all-weather flying, including an altimeter, gyro, artificial horizon, and radio aids to navigation. On 24 Sep 1929, Doolittle was the first pilot to take off, fly a set course, and land

on instruments alone.

On New Year's Day 1929, a team of Airmen, destined for fame in World War II, took off in a Fokker C-2 featuring a large question mark on the fuselage. The question was simple: how long could they stay in the air? Using a crude air refueling technique pioneered in 1923, Maj Carl "Tooey" Spaatz, Capt Ira Eaker, Lt Harry Halverson, Lt Elwood "Pete" Quesada, and SSgt Roy Hooe flew the Question Mark 150 hours and 40 minutes with 37 air-to-air refuelings, transferring 5,600 gallons of hand-pumped fuel to travel 11,000 miles. This endurance test proved the unlimited range available with air refueling. The quest for world records in the 1920s honed the skills of Airmen, advanced aviation technology, and kept military aviation in the public limelight.

ACTS and the Rise of the Bomber: The 1930s Air Corps

Although technological advances and occasional public relations forays continued into the 1930s, the Great Depression dominated the decade. The technological promise of all-metal construction, monoplane design, and advanced power plants met the harsh realities of a shoe-string budget forced by reduced tax revenues and economic malaise. Toward the latter half of the decade, powerful totalitarian states, including Fascist Italy, Nazi Germany, nationalist Japan, and Stalin's Soviet Union, threatened western democracies, but powerful isolationist sentiment limited the US military response.

Within the Air Corps, leading Airmen emphasized doctrinal development through the Air Corps Tactical School. Doctrine, the "thinking behind how to fight," provided ideas for technological requirements, aircraft procurement, strategy, and tactics. The Air Corps Tactical School (ACTS) served as the doctrinal center of military aviation from its founding in 1920, as the Air Service Field Officer School at Langley Field, VA. In 1922, it was renamed the Air Service Tactical School, before becoming the Air Corps Tactical School in 1926. Even before the ACTS moved to Maxwell Field, AL in 1931, the school attracted the best and brightest Airmen to its faculty, including: Harold L. George, Kenneth Walker, Donald Wilson, George C. Kenney, Haywood S. Hansell, and Muir S. Fairchild. Influenced by Billy Mitchell, Italy's Giulio Douhet, and Britain's Hugh Trenchard, the ACTS faculty emphasized long-range strategic bombardment.

According to ACTS lectures, massed bombers would penetrate enemy defenses, bypass field armies and navies, and strike enemy "vital centers," whose destruction would collapse the enemy's economy.

Proper target selection would destroy both an enemy's capability and will to fight. In an era before radar, airpower theorists believed effective air defense would be impossible. They looked to high altitude, speed, and internal armament for defense. The ACTS idea became known as the "industrial web" theory, or High Altitude Precision Daylight Bombardment.

Coinciding with ACTS doctrine, the American aviation industry introduced a series of advanced bombers that encouraged airpower advocates. In 1931, the Seattle-based Boeing Airplane Company introduced the B-9, an all-metal, stressed skin bomber with retractable landing gear and capable of 188 mph. A few months later, the Martin B-10 overshadowed the open-cockpit B-9. The B-10 also featured an all metal, monoplane design with retractable landing gear, enclosed cockpits, a glazed gun turret, variable pitch propellers, wing flaps, and an internal bomb bay with power-driven doors. On 19 Jul 1934, Col Henry H. "Hap" Arnold led a squadron of B-10s from Washington, DC to Anchorage, AK, covering 4,000 miles in 25 flying hours. Bomber theorists saw this exploit as a validation of their ideas.

The Air Corps was put to the test when President Franklin D. Roosevelt cancelled airmail contracts with civilian airlines in February 1934. Without a thorough

analysis of Air Corps capabilities, Brig Gen "Benny" Foulois asserted that the Air Corps would pick up the slack until contracts were renewed. However, the Air Corps underestimated the challenge posed. Army Airmen attempted to fly mail routes in open-cockpit planes with primitive instruments in one of the worst winters recorded. In three months, the Air Corps lost 66 aircraft and suffered 18 fatalities. The airmail fiasco forced Foulois to resign and led to a Congressional investigation known as the Baker Board.

The Baker Board scrutinized Air Corps operations and recommended the creation of a single command for all combat aircraft, known as General Headquarters (GHQ) Air Force. On 1 Mar 1935, Brig Gen Frank Andrews assumed command. Airmen applauded the action as a means to consolidate command, centralize doctrine, and integrate training. The first combat air forces were made up of 17 combat units: 3 wings, 10 groups, and 4 squadrons. Today's Air Combat Command traces its heritage to GHQ Air Force. Among other measures, the GHQ Air Force called for a bomber capable of carrying a 2,000-lb. payload for 1,020 miles, at a speed of 200 mph. The Martin and Douglas companies advanced designs, but it was Boeing's Model 299 that excited the GHQ Air Force staff. In August 1935, the four-engine aircraft flew 2,100 miles non-stop from Seattle to Dayton, Ohio, averaging 232 mph. The B-17 "Flying Fortress," paired with the Norden bombsight, revolutionized bombardment and promised to validate ACTS theories.

Dreams Fulfilled? Airpower in World War II
The European Theater

If the First World War signaled airpower's promise, the Second World War fulfilled the vision. In every aspect of aerial combat, airpower served as a force multiplier and a vital component of the joint, combined arms campaign. Air superiority proved a prerequisite for successful land, sea, or air operations.

On 1 Sep 1939, Adolf Hitler launched a massive assault on Poland that opened the greatest war in history and spawned the term Blitzkrieg, or "lightning war." The German Air Force, the Luftwaffe, employed Messerschmitt Me-109 fighters to gain air superiority, Heinkel He-111 and Dornier Do-17 twin-engined bombers to pound Poland's capital, Warsaw, and

Junkers Ju-87 Stuka dive bombers to attack Polish ground forces and terrorize refugees. Headed by Hermann Göring, the Luftwaffe emphasized speed and concentration of forces to crush the enemy.

In April 1940, German forces surprised neutral Denmark and Norway, where Luftwaffe aircraft inflicted significant losses on Britain's Royal Navy, protected inferior German naval forces, and airlifted German troops to Norwegian airfields. In May, Hitler's forces invaded the Netherlands and Belgium. The speed of the German advance and the ruthlessness of the Luftwaffe's terror bombing of Rotterdam shocked the West. German paratroopers and glider forces surprised Belgium's famed Eban Emael fortress, considered the strongest in Europe. When German forces attacked France, the Luftwaffe gained air superiority, masked the movement of German panzers through the Ardennes forest, and hindered Allied attempts to rally.

Following the defeat of France in June 1940, the victorious Luftwaffe faced Britain's Royal Air Force (RAF) in the Battle of Britain, the first all-air campaign in history. On paper, the Luftwaffe appeared to have a decisive edge, with 1,232 medium bombers, 406 dive-bombers, 813 single-engine fighters, 282 twin-engine fighters, and 50 long-range reconnaissance aircraft manned by experienced crews. Opposing them, Air Marshal Sir Hugh Dowding's Fighter Command assembled 704 operational aircraft, including roughly 400 Hawker Hurricanes, suited for attacking bombers, and 200 Supermarine Spitfires, a fighter equal to German Messerschmitts.

Despite the apparent mismatch, the German Air Force suffered from serious weaknesses. Substantial losses had eroded Luftwaffe strength; in particular, the forces in France badly needed rest and refitting.

Equally significant, German training, equipment, and experience proved ill suited for a long-range strategic air campaign. Although the Me-109 was a superb fighter, its short range limited its combat time and tactical flexibility over England. The long-range Me-110 proved hopelessly outclassed by RAF Spitfires and Hurricanes. On the other hand, Dowding's Fighter Command had been preparing for a German onslaught since 1937. Using Sir Robert Watson-Watt's innovation, radar, the British created an effective, integrated air defense system. Dowding also exploited a breakthrough in code breaking, known as the ULTRA secret, that gave British intelligence forewarning of major attacks and invaluable insight on the status of German maintenance and logistics.

Plagued by poor intelligence, Göring and other Luftwaffe leaders miscalculated, leading to a battle of attrition won by the RAF. Failing to appreciate the value of British radar stations, the Germans first attacked RAF airfields and then after the RAF bombed Berlin 24 August, switched to a terror bombing campaign against London. Against German losses of 1,733 aircraft, the RAF lost 915 planes. By 15 Sep 1940, Hitler abandoned his planned invasion of Britain. In tribute to RAF Fighter Command, Prime Minister Winston Churchill stated, "Never in the field of human conflict was so much owed by so many to so few."

The fall of France in June 1940 galvanized President Franklin Roosevelt's resolve to fight Nazi tyranny. Knowing the isolationist sentiment of many Americans, Roosevelt turned to airpower as a major weapon. The President called for American industry to build 50,000 military aircraft. Considering that in 1939, the US Army Air Corps numbered roughly 1,800 aircraft and 18,000 men, this figure stunned air leaders and industrialists alike. American industry proved equal to the task, but aeronautical designs, blueprints, tools, dies, air frames, engines, not to mention factories, skilled workers, and the countless other components of an aviation industry required time to develop. Air Logisticians such as Maj Gen Oliver P. Echols began the most massive aircraft procurement program in history. By December 1940, the US was building aircraft at a rate of only 800 per month. But by 1942, American factories produced 47,800 aircraft, and by 1944, an astronomical 96,300 planes. American industrial production emerged as a key to Allied victory.

To manage growing American airpower, a major reorganization created the United States Army Air Forces (USAAF). General "Hap" Arnold was appointed Commanding General of the USAAF and Deputy Chief of Staff to Gen George C. Marshall. In August 1941, a group of ex-ACTS instructors created a doctrinal blueprint, Air War Planning Document 1 or AWPD-1, for the conduct of a strategic air campaign against the Axis. Led by Lt Col Harold "Hal" George, Maj Lawrence Kuter, Maj Kenneth Walker, and Capt Haywood "Possum" Hansell, the team created the conceptual framework for the American air effort in World War II. Reflecting 1930s ACTS doctrine of using massive force to destroy the enemy's will and capability to fight through long-range strategic bombardment, AWPD-1 called for 239

combat groups, 26,416 combat aircraft, including 7,500 heavy bombers, 37,051 training planes, 150,000 trained aircrews, and 2.2 million personnel.

As America entered the war in Dec 1941, the RAF tried to persuade the USAAF to switch to night operations, like those of RAF Bomber Command. Under Air Marshal Sir Arthur Harris, RAF bombing doctrine embraced night area bombing of German cities to "dehouse" German workers. To USAAF leaders, night bombing was ineffective, inefficient, and indiscriminate with regard to civilian casualties. After tough negotiations, the Casablanca Directive of January 1943 inaugurated the Combined Bomber Offensive (CBO), codenamed Operation PointBlank, combining American precision daylight bombing and British night area bombing.

In February 1942, Brig Gen Ira C. Eaker established the Eighth Air Force Bomber Command, flying from bases in England, in preparation for the USAAF buildup.

Maj Gen Carl A. "Tooey" Spaatz assumed command of the "Mighty Eighth" in June 1942. On 17 Aug 1942, twelve B-17Es, of the 97th Bomb Group, conducted the first American operational bombing mission. The strike against a railroad marshalling yard in Rouen, France, barely penetrated the German defenses, but the mission and a series of others known as the

"Freshman Raids" showed promise for American daylight bombardment.

Three disastrous missions in the late summer and fall of 1943 demonstrated the flaws of USAAF theories. Eager to strike Hitler's oil supply, 177 North African-based Consolidated B-24 Liberators attacked oil refineries at Ploesti, Romania, on 1 Aug 1943. The raid required a 2,700-mile flight, much of it low-level to avoid radar detection, accurate open-water navigation, good weather, and surprise to be successful since Ploesti was one of the most heavily defended targets in Europe. But a combination of bad weather, human error, and bad luck scattered the bomber formations and resulted in a hellish nightmare for the surviving crews. As the carefully prepared plan imploded, bombers improvised and struck targets of opportunity in the face of determined fighter opposition and hundreds of anti-aircraft guns. The attacking force lost 54 B-24s, 41 of them in combat. Of the 177 aircraft, only 30 emerged unscathed. Although the strike reduced oil-refining capacity by 40%, within a few days a new facility opened negating the damage.

After finally assembling enough trained crews to strike deep into Germany, Eighth Air Force planners targeted German ball bearing factories in an effort to destroy a "vital center" in the enemy's industrial web. They devised an ambitious double raid upon the Messerschmitt aircraft factory at Regensburg and the top-priority Schweinfurt ball bearing plants. The plan called for a wave of the Third Air Division to fight through German fighters and hit Regensburg and then surprise the enemy by proceeding to North Africa to land. Thirty minutes later, a second bomber wave would strike Schweinfurt, while German fighters were on the ground rearming and refueling. On 17

Aug 1943, Brig Gen Curtis E. LeMay's Third Air Division launched the first wave. Thick fog delayed the second wave and prevented fighter escorts from taking off. When the fog lifted, almost the entire German fighter force pounced upon the ill-fated First Air Division. The Eighth Air Force staggered with the loss of 60 out of 361 B-17s and 600 trained aircrew, more casualties in one day than the previous six months. To make matters worse, the Schweinfurt ball bearing plants required reattack.

Known as "Black Thursday," the 14 Oct 1943 mission against Schweinfurt effectively ended the USAAF's

unescorted bombing campaign. Determined to destroy the top priority target, Gen Eaker ordered 291 B-17s back into the gauntlet of German fighters. This time, bombing accuracy improved significantly and the mission severely damaged the factories, but another 60 bombers were shot down, seven more were destroyed upon landing in England, and 138 B-17s suffered battle damage.

While warplanners devoted the bulk of American airpower to daylight strategic bombing, in October 1943, heavily modified and mission unique bombers flown by the Special

Flight Section of the 12th Air Force's 5th Bombardment Wing signaled the introduction of sustained Army Air Force special operations in the European Theater. Along

with the England-based "Carpetbaggers" of the 801st Bombardment Group (S), these units provided clandestine support for allied partisans and guerilla units in occupied territories, and rescued hundreds of downed aircrews trapped behind enemy lines.

Some technological and production breakthroughs reversed the course of the air war over the winter of 1943-1944. During the initial campaigns, effective long-range escort fighters appeared to be technically impossible. In order to carry the fuel necessary for long-range flight, fighters required at least twin engines, but the increased size sacrificed speed and maneuverability. The long-range Lockheed P-38 Lightning offered a partial solution, but the P-38's performance lagged at high altitudes. In mid-1943, the USAAF introduced 75-gallon, and later 108-gallon, drop tanks that extended the combat radius of the Republic P-47 Thunderbolt fighter from 175 miles to 280 miles and 325 miles respectively. The P-47's extended range proved an important step, but only a partial answer to the escort problem.

The Tuskegee Airmen

Colonel Alan L. Gropman, USAF (Ret)

The North American P-51 Mustang revolutionized the air war over Europe. Designed in only 100 days during the spring of 1940, the Mustang was to supplement the RAF's Spitfire. The initial Allison engine for the P-51 proved inadequate, but when the Spitfire's Rolls-Royce Merlin engine replaced the original power plant, the results stunned aviators. At 440 mph the P-51B was faster, and could out turn and out dive the latest models of Me-109 and the new Focke-Wulf FW-190. With a basic range of 500 miles, augmentable to 850 miles, the Mustang flew farther than a B-17 with normal payload. Introduced in December 1943, the P-51 had to wait until late February 1944 before weather permitted full flight operations. It was a technological marvel: a plane with a bomber's range and a fighter's performance. The all-black Tuskegee Airmen distinguished themselves flying "Red Tail" painted P-51 Mustangs on 200 escort missions into Germany-without losing a single friendly bomber to an enemy fighter.

In 1941, President Franklin D. Roosevelt directed the Army Air Corps to accept black Americans into aviation cadet training. The Air Corps, like all other components of the United

States armed forces, decided to segregate black aviators into all-black squadrons. By the end of World War II, nearly a thousand black Americans had earned their wings as Army flyers. Fired by a determination to prove their patriotism, valor, and skill in combat, these black aviators, forever called the Tuskegee Airmen, struck a significant blow against racism in America.

The first Tuskegee Airmen to fight were members of the 99th Fighter Squadron, a unit commanded by black West Point graduate and future Air Force general officer, Col Benjamin O. Davis, Jr. Over Anzio on 27 Jan 1944, pilots from the 99th, flying obsolete P-40s, downed nine superior Focke-Wulf 190s. As the 99th continued scoring kills, the 332nd Fighter Group, another unit manned by Tuskegee Airmen, arrived in Italy with obsolete P-39 ground-attack fighters. In the spring of 1944, these segregated units transitioned to P-47 Thunderbolts, then a month later to P-51 Mustangs, and began flying bomber-escort missions.

The 332d flew escort missions from 9 Jun 1944 until the German surrender in the spring of 1945. By a large margin, the Tuskegee Airmen destroyed more aircraft than they lost. They shot down 111 enemy aircraft in air-to-air combat, losing 66 of their own aircraft to all causes, including seven shot down. On 200 escort missions, they never lost a single friendly bomber to an enemy fighter.

Tuskegee Airmen fulfilled their mission uniquely well. No other fighter group that had stayed in the hunt half as long could claim no bomber losses to enemy fight-ers. While the 332d Fighter

Group fought in Europe, the segregated 477th Bomb Group, manned by Tuskegee Airmen, was activated in 1944, at Selfridge Field, MI. Relocated several times during the next 18 months and slowed in its preparations for war because training was sacrificed to maintain segre-gation, the 477th achieved operational readiness too late to be shipped overseas.

Nevertheless, by their performance, the Tuskegee Airmen struck a significant blow to the poison of racism in America. They demolished bigotry by their actions in the skies over North Africa, the

Mediterranean, Sicily, Italy, Austria, Yugoslavia, France, Romania, and Germany. With that record they dispelled myths, opened eyes, rewrote history, and prepared the United States Air Force to be the first armed service to integrate racially.

The P-47 and P-51 team seized air superiority from the Luftwaffe in the spring of 1944. Complementing the technological improvements, Allied factories poured out large numbers of new aircraft, and stateside

training bases mass-produced well-trained air crews. At the helm of the Eighth's Fighter Command, Brig Gen William E. Kepner maximized his advantage by introducing new tactics. No longer would fighters be required to "stick to the bombers." Numerical superiority permitted fighter sweeps and aggressive scouting; superior range allowed strafing of German airfields and attacking targets of opportunity.

Armed with new aircraft, tactics, and superior numbers, Spaatz, Doolittle, and Kepner launched Operation ARGUMENT with the objective of winning air superiority and crippling Germany's aircraft industry. Between 20 and 25 Feb 1944, the Eighth Air Force flew 3,300 heavy bomber sorties, the Fifteenth Air Force added 500 missions from Italy, and RAF Bomber Command flew 2,750 night attacks aimed at German aircraft manufacturing plants; protecting them were nearly 4,000 fighter sorties. At a cost of 226 American bombers, 114 British heavies, and 41 USAAF fighters, Operation ARGUMENT broke the Luftwaffe's back by destroying 355 fighters, damaging 155, and killing 400 fighter pilots. Although the Luftwaffe replaced aircraft losses, it could not replace the 2,262 experienced pilots killed in the 5 months preceding D-Day, the invasion of Normandy.

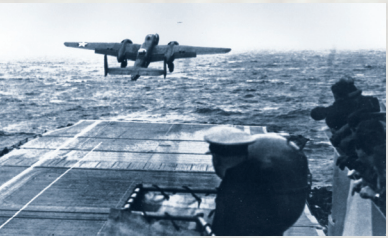
By 6 Jun 1944, Allied air forces dominated the skies

of Europe. On the first day of the invasion, the Allies directed 8,722 USAAF and 5,676 RAF sorties against German defenses in France. In response, the once vaunted Luftwaffe could send fewer than 100 sorties airborne and only 2 German aircraft inflicted damage on the invasion beaches. In essence, American and British air forces won where the Luftwaffe had lost; Allied bombers and fighters trumped the Germans' integrated air defense network.

The Combined Bomber Offensive (CBO) devastated Germany following the Normandy invasion. Approximately 75% of the CBO's 1.5 million tons of bombs were dropped after June 1944. In contrast to the horrific losses experienced at Schweinfurt, Regensburg, and Ploesti in 1943, American losses fell to "acceptable" rates. By 1945, some raids reported negligible losses: 1 bomber lost out of 1,094 sent to Kassel; 5 out of 1,310 at Chemnitz-Magdeburg; and 0 out of 1,219 at Nuremburg. At its peak, the USAAF and RAF massed 7,904 heavy bombers in the theater and 28,000 combat planes total. By 16 Apr 1945, Gen Spaatz declared the strategic air war against Germany ended since all significant targets were considered destroyed.

From 1942 to 1945, the CBO constituted the longest, bloodiest, and greatest sustained air campaign in

history. According to the US Strategic Bombing Survey, the Allies flew 1,693,565 combat sorties and dropped 1,554,463 tons of bombs that killed an estimated 305,000 Germans, wounded 780,000, and destroyed 3,600,000 buildings—20% of the nation's total. Airpower emerged as a dominant weapon in Western Europe during World War II.



Air War in the Pacific

America's first combat experience in the Pacific Theater of World War II occurred before a declaration of war. In early 1941, Claire Lee Chennault, ex-ACTS instructor, organized the American Volunteer Group, known as the "Flying Tigers," to aid Nationalist China against Japanese in-vaders. Famous for painted shark's teeth on their Curtis P-40 Warhawks, the Flying Tigers amassed an impressive 286 confirmed victories against 12 pilots lost in action before being disbanded in July 1942.

On 7 Dec 1941, "a date which will live in infamy," Japanese naval airpower dealt a devastating blow to the US Pacific fleet at Pearl Harbor. Two waves of 350 Japanese aircraft sank or heavily damaged all 8 US battleships. Excessively concerned over the prospect of sabotage, the US Army ground commander ordered USAAF aircraft parked in tight rows, that made prime targets for Japanese aviators. To make matters worse, a few hours later, Japanese for-ces caught US aircraft on the ground refueling in the Philippines and destroyed B-17s and assorted fighters.

As Japanese forces appeared invincible during the first 6 months of 1942, President Roosevelt desperately wanted an offensive strike against the Japanese home islands to boost sagging morale. On 18 Apr 1942, Lt Col James "Jimmy" Doolittle led 16 North American B-25 Mitchell medium bombers from the carrier USS Hornet to drop bombs on various targets over Tokyo, Kobe, and Nagoya before crews bailed out or crash-landed in China. The Doolittle Raid inflicted little damage, but the gesture shocked the Japanese military and naval leaders and cheered the American public. Upon his return to the United States in May 1942, Jimmy Doolittle received the Medal of Honor and promotion to brigadier general.

Naval aviation played a vital role in the Pacific War. Under the leadership of Adms Chester Nimitz, Frank "Jack" Fletcher, Raymond Spruance, and William "Bull" Halsey, US carrier aviation proved the value of airpower at sea. The Battle of Coral Sea, fought between 4-8 May 1942, marked the first naval battle fought entirely by air. At the Battle of Midway, on 4 Jun 1942, US Navy pilots sank four Japanese carriers and turned the tide of the war in the Pacific.

The primary USAAF contribution to the Pacific counterattack was made by the Fifth Air Force attached to Gen Douglas MacArthur's Southwest Pacific Theater. While Adm Nimitz's carrier task forces struck from the Central Pacific, MacArthur's command thrust

across New Guinea toward the Philippines. The Fifth Air Force operated from primitive bases with second string aircraft, a 10,000-mile supply chain, and low priority for equipment, fuel, and personnel due to a "Europe First" strategy.

In July 1942, Maj Gen George C. Kenney assumed command of the Fifth Air Force. Kenney maximized the combat power of a resource-poor command. In a theater where range dominated employment decisions, Kenney used the Lockheed P-38 Lightning with locally developed 150-gallon drop tanks. Kenney encouraged an ingenious subordinate, Maj Paul "Pappy" Gunn, to mount quad .50-caliber machine guns in the nose of A-20 and B-25 aircraft, creating deadly attack planes. Other Fifth Air Force innovations included parachutes attached to fragmentation bombs and low-level "skip" bombing techniques.

Even less of a priority than Kenney's Fifth Air Force, Allied forces in the China-Burma-India (CBI) Theater faced logistical challenges at the end of the war's longest supply chain. Called to transport vital supplies across the Himalayas, Air Transport Command crews, flying C-46s and C-47s, braved perilous weather conditions as they delivered 650,000 tons of supplies to Chinese and American forces. Flying the "Hump" was among the most hazardous military air operations of World War II. Architect of the enterprise, William H. Tunner developed

many maintenance and cargo-handling techniques that later proved invaluable during the Berlin Airlift.

In addition to Air Transport Command efforts in the China-Burma-India Theater, the 1st Air Commando Group (1ACG), lead by Lt Colonels Phillip G. Cochran and John R. Allison, provided assistance to British "Chindit" forces, conducting long-range penetration missions against the Japanese during Operation THURSDAY. America's first Air Commandos demonstrated that air power could support unconventional warfare any place, any time. The 1 ACG also demonstrated its ingenuity, conducting the first helicopter combat rescue.

As Allied soldiers, sailors, and Marines pushed back the borders of the Japanese empire, Airmen sought to destroy Japan through strategic bombardment.

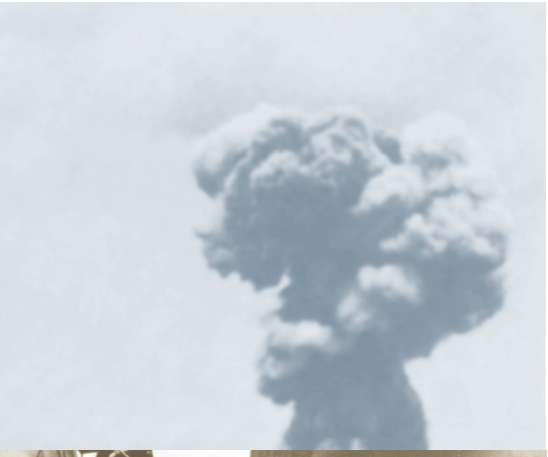
Gen Arnold hoped to avoid a costly land invasion of Japan and clinch victory through airpower alone. In November 1939, Air Corps leaders selected the primary instrument of the campaign, the Boeing XB-29. With a pressurized crew compartment, remotely con-trolled guns, and new radial engines, the B-29 was an aircraft of unprecedented size and capability. The USAAF ordered 1,664 before the prototype had even flown. The rush to produce the plane led to substantial technical problems. Nevertheless, by April 1944, B-29s appeared in the CBI to conduct Operation MATTERHORN.

At first, crews of the 20th Bomber Command attempted

to reproduce the high-altitude daylight precision bombing of the USAAF doctrine with disappointing results. Flying from bases in China with logistical staging from India, 20th Bomber Command faced engine problems amplified by distance and weather. By October 1944, B-29 operations shifted to Saipan, significantly reducing supply lines. An ex-ACTS instructor, Haywood S. Hansell, renewed efforts for a daylight precision bombing campaign. Impatient with its results in January 1945, Gen Arnold replaced Hansell with Maj Gen Curtis E. LeMay, a proven combat commander from the European theater.

By March, LeMay drastically altered B-29 tactics. To avoid the jet stream and high-altitude engine problems, LeMay ordered low-altitude, night attacks with bombers stripped of defensive machine guns, reduced fuel loads, and increased bomb loads. Much like the RAF, LeMay's B-29s relied on darkness for protection and pummeled enemy cities with incendiary bombs. From March to August 1945, American firebomb raids destroyed 66 Japanese cities and burned 178 square miles of urban landscape. Civilian casualties were severe; in one raid against Tokyo, an estimated 80,000 people perished.

With a successful atomic test on 18 Jul 1945, the Allied powers issued an ultimatum on 26 July calling for the Japanese government to



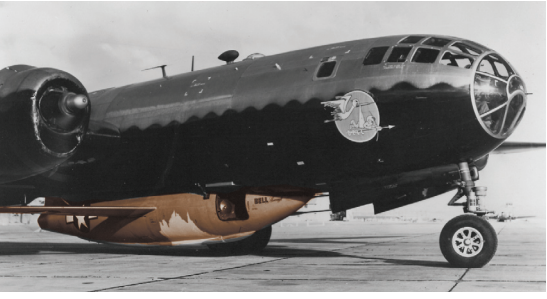
Air Force Independence and the Cold War

With victory in World War II, the American public returned to "normal life." Airpower and military affairs in general decreased in importance. From a wartime strength of over 79,000 aircraft and 2,411,294 personnel, by May 1947 air forces dwindled to 24,000 aircraft and just 304,000 personnel. Nevertheless, airpower's impact on warfare led to the realization of Billy Mitchell's dream. On 26 Jul 1947, President Harry S. Truman signed into law the National Security Act of 1947, which provided for a separate Department of the Air Force. On 18 Sep 1947, Stuart Symington

became the first Secretary of the Air Force and officially established the United States Air Force as an independent, coequal service. Under Gen Carl A. Spaatz's leadership as the first Air Force Chief of Staff and that of his successor, Gen Hoyt S. Vandenberg, the Air Force clarified roles and missions and organized for a growing Cold War.

Technological breakthroughs with jet aircraft changed the face of aviation at the same time. Although the Bell XP-59 Airacomet first flew on 1 Oct 1942, the Lockheed

P-80 (later redesignated F-80) entered service in December 1945 as the first operational jet fighter for the Air Force. On 14 Oct 1947, Charles "Chuck" Yeager seized headlines as the first man to break the sound barrier. His Bell X-1 "Glamorous Glennis" reached Mach 1.06 at 43,000 feet after a launch from a B-29 mother ship. Towards the end of World War II,



German technological advances such as the V-2 rocket caught the attention of Army Air Forces leaders such as General Henry "Hap" Arnold. General Arnold initiated several studies of the possible ramifications of the new technologies, including one on space operations by his long-time friend, scientist Theodore von Karman. Von Karman's Nov 1945 report, "Toward New Horizons", concluded that "the satellite is a definite possibility."

In early 1946, Maj Gen Curtis E. LeMay asked Project RAND to study the feasibility of using satellites for

reconnaissance, weather forecasting, communications, and navigation; the 321-page report was delivered in May 1946. The report titled, "Preliminary Design of an Experimental World-Circling Spaceship" not only suggested that satellites were possible but explored the feasibility of the United States placing a 500 pound satellite into orbit by 1951. This event served as the basis for Air Force involvement in space operations and would mark the beginnings of the transition to an air and space force.

The Berlin Crisis awakened Americans to the Cold War between the United States and the Union of Soviet Socialist Republics. On 24 Jun 1948, the Soviets closed railroad and road corridors to the two-and-a-half million residents of West Berlin, deep within Communist East Germany. United States Air Forces in Europe (USAFE) commander, Maj Gen Curtis E. LeMay, organized a makeshift airlift of food, medicine, and coal. USAFE C-47 and C-54 cargo aircraft established a precise schedule of flights every 3 minutes, 24 hours a day. After the first month, Maj Gen William H. Tunner assumed control of an expanded effort that would average 300 American and 100 British aircraft, applying expertise from flying the "Hump" during World War II. On 15 Apr 1949, 1,398 aircraft delivered a one-day record—12,941 tons of

supplies. By 1949, the Soviets recognized the airlift's success and lifted the blockade. Operation VITTLES massed 277,804 flights and delivered 2,325,000 tons of supplies. This nonviolent use of airpower defused a potentially disastrous confrontation.

The 1948 Berlin Crisis and the Soviet explosion of an atomic device in 1949 dramatized the Air Force's lack of war readiness. As new Commander-in-Chief, Strategic Air Command (SAC), now Lt Gen LeMay emphasized rigorous training, exacting performance standards, and immediate readiness. In the late 1940s, SAC incorporated the B-50, a more powerful version of the B-29, and the massive Convair B-36 Peacemaker, the first bomber with intercontinental range. In the early 1950s, SAC upgraded to an all-jet bomber force with the Boeing B-47 Stratojet and the Boeing B-52 Stratofortress. Behind the scenes, the Air Force conducted a highly secret, but extensive, program of electronic reconnaissance around the periphery of the Union of Soviet Socialist Republics (USSR) and covert overflights to assess Communist air defenses.

As the Air Force attempted to increase readiness, the armed forces moved to the forefront of social change. On 26 Jul 1948, President Truman signed Executive Order 9981, ending formal racial discrimination and fostering equal opportunity. Proponents of the move looked to the valor of the Tuskegee Airmen during World War II. Under the leadership of Col Benjamin O. Davis, Jr. (who later advanced to four-star general), all-black fighter and bomber squadrons proved capable and highly effective. The exploits of the 673 fighter pilots, 253 bomber pilots, and 132 navigators produced by Alabama's Tuskegee Institute paved the way for diversity in our Air Force.

On 25 Jun 1950, Communist North Korean forces unleashed a massive in-vasion of US-backed South Korea. Three days later, American B-26 bombers

attacked advancing North Korean troops in the first major flare-up of the Cold War. Over the next 6 weeks, Far East Air Forces (FEAF), commanded by Lt Gen George E. Stratemeyer, gained air superiority and assisted United Nations forces in halting the North Korean assault. The initial phase of the Korean War illustrated the dangers of unprepared forces as American Airmen struggled to relearn close air support and interdiction skills. Adding to their problems, the limited range of the jet F-80s prevented adequate "time over target" for tactical operations. Concurrently, five groups (about 100 aircraft) of FEAF Bomber Command B-29s conducted strategic operations to destroy the enemy's will and capacity to fight. Although United Nations (UN) air forces controlled the skies and destroyed North Korea's industrial base, multiple limitations frustrated hopes of decisive victory.

Gen Douglas MacArthur's amphibious assault at Inchon and successive operations shattered the North Korean Army, but the UN advance into North Korea led to Communist Chinese inter-vention. The entry of a half-million Chinese troops in Nov 1950 drastically changed the war. Within weeks, advanced Soviet-made MiG-15 fighters appeared. Flown by North Korean, Chinese, and Soviet pilots, the MiG-15 outclassed American F-51, F-80, and F-84 aircraft in performance. In this context, Lt Russell Brown, flying an F-80C, shot down a MiG-15 in the world's first all-jet air battle on 8 November 1950. To

answer the speed and altitude superiority of the enemy aircraft, Air Force leaders rushed the North American F-86 Sabre into action. The F-86 matched the MiG's speed and proved a more stable gun platform. As the war settled into stalemate on the ground, F-86s battled over "MiG Alley" where their superior training and experience prevailed. At a cost of 76 Sabres lost to MiGs (and 142 to other causes), F-86 pilots destroyed 792 MiGs and 18 other enemy aircraft.

During the Korean War, Air Force Rescue medically evacuated over 9600 wounded soldiers and rescued nearly 1000 personnel shot down behind enemy lines. Meanwhile, US Air Force Special Operations (SOF) Air Resupply and Communication Wings executed unconventional warfare and counter-insurgency operations against enemy forces.

In the Korean War, a new group of Air Force pilots entered the pantheon of fighter aces. The F-86 pilots established a remarkable 10:1 kill ratio. Capt Joseph McConnell, a B-24 navigator in World War II, led the pack with a score of 16, closely followed by Capt James Jabara who tallied 15 kills. Jabara gained

recognition as the world's first jet ace. Unlike the mass squadron formations often flown in World War II, Korean War pilots devised new tactics based on flights of only four F-86s.

Despite success in the air war, the Korean War frustrated American airpower. Accustomed to the heroic effort of World War II, Air Force leaders struggled with political, technological, and resource limitations inherent in the Cold War. Worried that the conflict in Korea foreshadowed a Soviet invasion of Europe, American policy makers limited operations in Asia in order to build up North Atlantic Treaty Organization (NATO) forces. Although it did not "feel" like a win, UN forces repelled two Communist invasions of South Korea and American airpower secured the skies against enemy air attack.

After the Korean conflict, Air Force missile and space capabilities continued to develop and grow rapidly. In late 1953, Assistant Secretary of the Air Force for Research and Development, Trevor Gardner convened a group of experts known as the Teapot Committee to examine the field of long-range missiles. The committee's 10 Feb 1954 report recommended accelerating the development of an intercontinental ballistic missile (ICBM). Following this recommendation, on 1 Jul 1954 the Air Research and Development Command (ARDC) established the Western Development Division (WDD) in Inglewood, CA, to develop and field ICBMs. On 2 Aug 1954, Brig Gen Bernard Schriever assumed command of the new organization .

Concurrent with efforts to develop long-range missiles, the US also pursued space-based technology that could provide accurate information on Soviet military intentions. On 27 Nov 1954, Air Force senior leaders followed the recommendation of the RAND Corporation's "Project Feed Back Report" by issuing

Weapon System requirement No. 5, which directed the development of an electro-optical reconnaissance satellite, that later became weapon system 117L (WS 117L). The scope of WS 117L eventually broadened to include other space-based missions such as meteorology, missile warning and multispectral imaging.

On 4 Oct 1957, the course of missile and satellite development changed when the Soviet Union successfully launched the Sputnik I satellite into earth orbit. The Soviet's success marked the beginning of the space age. It also sparked the 'space race' between the United States and Soviet Union. From that moment on, Over the next two decades, the Air Force played a major role in the development of the nation's space programs—marking the Air Force as America's air and space force. In response, President Eisenhower accelerated US civil and military space efforts that would prove crucial throughout the Cold War.

However, a new Soviet threat emerged with the launch of Sputnik I on 4 Oct 1957. In response, President Eisenhower accelerated US civil and military space efforts that would prove crucial throughout the Cold War. Through the 1970's the Army, Navy, and Air Force expanded space technologies, many of them classified, to provide communication,

meteorology, navigation and reconnaissance support to national decision makers. From August 1959 through May 1972, for instance, the highly classified CORONA program gave the nation its first eyes in space. Declassified in 1995, CORONA was a collective effort by the Air Force and the Central Intelligence Agency, the two founding partners of the National Reconnaissance Office (NRO).

In 1958, the Air Force drew up plans for a manned military presence in space, but President Eisenhower reserved manned missions for the National Aeronautics and Space Agency (NASA); however, the Air Force's plan formed the basis of the MERCURY, GEMINI, and APOLLO programs. The Atlas rocket, which began as a US Army Air Corps ballistic missile program in Oct 1945, was chosen to launch the MERCURY missions. The Titan-II booster, which also began as a ballistic missile program, launched the GEMINI astronauts; in fact, the Air Force and its contractors planned, built and launched all of the Titan-II rockets in Project GEMINI.

In 1960, the National Reconnaissance Office (NRO) was formed to take charge of highly classified reconnaissance satellites. President Eisenhower undertook several initiatives to help prevent a

surprise nuclear attack against the US, including establishing the classified CORONA satellite photo reconnaissance program. This system, known publicly as the DISCOVERER research program, achieved its first successful launch—DISCOVERER XIII—on 10 Aug 1960. CORONA employed a payload capsule that jettisoned from the orbiter, returned to earth by parachute, and was captured by an aircraft. DISCOVERER XIV, launched one week after the recovery of DISCOVERER XIII's capsule, took over 3,000 feet of reconnaissance film from space, and heralded the beginning of the US's space-based photo reconnaissance capability.

The Air Force concentrated on unmanned missions to fulfill national security needs. Space reconnaissance satellites, for instance, supported strategic deterrence throughout the Cold War by providing invaluable knowledge of the Soviet Union's nuclear inventory, and by verifying arms control treaty compliance. Space systems also provided early warning of any missile attack on North America, and worldwide communications for strategic command and control.

Vietnam, 1961-1973

After 8 years, where the Air Force emphasized building America's strategic nuclear forces, "national wars of liberation" backed by the Soviet Union confronted the administration of

President John F. Kennedy. In response to increased Communist efforts in Laos and South Vietnam, in April 1961, President Kennedy ordered Operation Farmgate, the covert deployment of the 4400th Combat Crew Training Squad-ron (nicknamed "Jungle Jim") to train the South Vietnamese Air Force. Flying North American T-28 Trojans, Douglas A-26 Invaders, and Douglas A-1E Skyraiders, American pilots launched attack missions under the guise of "combat training." Following the Gulf of Tonkin Incident on 2 Aug 1964, where North Vietnamese torpedo boats attacked the USS Maddox and USS C. Turner Joy, President Lyndon B. Johnson raised the shroud of secrecy and ordered an orchestrated air attack as a "show of force." By December 1964, North American F-100 Super Sabres, McDonnell RF-101 Voodoos, and Republic F-105 Thunderchiefs, with Boeing KC-135 Stratotanker support, conducted Operation Barrel Roll, attacking Communist forces in Laos.

Faced with a de-teriorating pol-itical and military situation in South Vietnam, President Johnson ordered Operation Rolling Thunder as a sign of American support to South Vietnam and a signal of US resolve. Beginning on 2 Mar 1965, Rolling Thunder was "a program of measured and limited air action against selected military targets in North Vietnam remaining south of the 19th Parallel."

Closely managed by the White House, Rolling Thunder sought to apply incrementally announced military power to influence North Vietnamese will to wage war. However, the US underestimated the enemy's resiliency and determination. Air Force leaders, chafed at rules of engagement that negated the speed, surprise, and flexibility of massed airpower. They saw periodic "bombing pauses," intended to signal American intentions, as allowing enemy recovery. During 1965, North Vietnamese air defenses, including Soviet-made SA-2 surface-to-air missiles (SAM), multiplied; Hanoi established an advanced radar-controlled air defense system that combined SAMs, anti-aircraft artillery (AAA), and Soviet-produced MiG-17 and MiG-21 interceptors. Consequently, US losses mounted without any visible effect from the air campaign. By the fall of 1968, Air Force tactical aircraft had flown 166,000 sorties over North Vietnam and Navy attack aircraft had added 144,500. In the process, the enemy downed 526 Air Force aircraft, with SAMs accounting for 54, MiGs destroying 42, and AAA claiming the remainder. Personnel losses were equally heavy—of the 745 Air Force crewmen shot down over North Vietnam, 145 were rescued, 255 were confirmed killed, 222 became prisoners, and 123 were classified missing in action (MIA). Air Force leadership found these results intolerable for an air campaign with virtually complete air superiority.

Complementing the operations over North Vietnam, the air war over South Vietnam demonstrated the full spectrum of airpower. Air Force aircraft and helicopters provided close air support, interdiction, reconnaissance, airlift, tanker support, and search-and-rescue capabilities. Air Force resources ranged from one-man Cessna O-1 Bird Dogs, used by forward air controllers to mark enemy targets for strikers, to mammoth B-52Ds modified to drop as many as 27 750-lb. bombs and 84 500-lb. bombs for Arc Light interdiction missions. Vintage World War II aircraft, like AC-47 "Puff the Magic Dragon" gunships, joined the state-of-the-art General Dynamics F-111 with its swing-wing design and advanced terrain-following radar.

The siege of Khe Sanh in January 1968 displayed the potential of Air Force close air support. With 6,000 US Marines surrounded by 20,000 North Vietnamese troops protected by hilly, covered terrain, Gen William Momyer responded with massive firepower in Operation Niagara. A flight of three B-52 struck the enemy every 90 minutes for most of the 77-day siege. Preventing the enemy from overrunning the base, American aircraft dropped 100,000 tons of bombs, two-thirds from B-52s.

Following President Johnson's 1968 bombing halt, newly elected President Richard M. Nixon began a phased withdrawal from the frustrating conflict. From a

peak of 536,000 US troops in 1968, American personnel numbered fewer than 100,000 by 1972. When the North Vietnamese launched the Easter Offensive in Spring 1972, Nixon resolved to achieve "Peace with Honor." With added ground troops a political impossibility, Nixon relied on Operation Linebacker to blunt the Communist attack.

In contrast to Rolling Thunder, Nixon did not micromanage military forces and significantly reduced the restrictions placed on war fighting. New television- and laser-guided "smart" bombs dramatically increased strike accuracy and heralded the arrival of precision-guided munitions (PGM). On 13 May 1972, 16 McDonnell-Douglas F-4 Phantoms hit the Than Hoa bridge with 24 smart bombs and wrecked a target that had eluded American Airmen for years. From April to October 1972, Air Force and Navy air-craft dropped 155,548 tons of bombs on North Vietnamese troops. Line-backer also provided the first aces of the war. On 28 Aug 1972, Capt Steve Ritchie shot down his fifth MiG-21. Within weeks, two F-4 weapons systems officers joined the ranks of aces: Capt Charles De Bellevue with six kills and Capt Jeffrey Feinstein with five. When North Vietnamese negotiators accepted specific peace conditions, President Nixon terminated the air campaign.

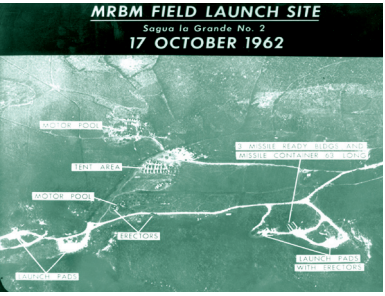
In December 1972, North Vietnamese intransigence over the final peace agreement prompted President Nixon to initiate Linebacker II, an intense 11-day air campaign to pressure enemy compliance. From 18 to 29 December, American aircraft pounded military and industrial targets in North Vietnam. For the first time, the White House authorized B-52 strikes near Hanoi. In less than 2 weeks, 729 B-52 sorties dropped 15,000 tons of bombs and fighter-bombers added another 5,000 tons. Despite the loss of 26 aircraft, including 15 B-52s, airpower broke the impasse. Peace talks resumed 8 Jan 1973, and a comprehensive cease-fire was signed on 23 January.

Airpower demonstrated its versatility and wide-ranging impact in Vietnam, and also its limitations. Despite an impressive showing militarily, the United States did not "win decisively" in Vietnam, but withdrew from the conflict. Although the Air Force flew over 5 million sorties and dropped 6 million tons of bombs, North Vietnamese forces eventually conquered South Vietnam in April 1975. Airpower could not prevent the collapse of the South Vietnamese government and the American will to fight.

The Cold War Concluded

President Kennedy's flexible-response nuclear war-fighting doctrine of the early 1960s lacked the

technology to match its vision of many options adapted to meet the varieties of Cold War crises. Advances in geodesy and cartography and the integrated circuit developed in the early 1960s for missile and satellite guidance systems, significantly improved missile accuracy. Decreased circular error probable (CEP) (the radius of a circle in which at least 50 percent of the targeted missiles would hit) meant that warheads could be smaller. Because they were smaller and lighter, more warheads could be mounted to each Intercontinental Ballistic Missile (ICBM) and Submarine Launched Ballistic Missiles (SLBMs). In the early 1970s, the DoD developed multiple independently targetable reentry vehicles (MIRVs), allowing three or more warheads on each ICBM and SLBM. The Air Force's arsenal did not rise above 1,054 Titan and Minuteman ICBMs; many now carried 3 MIRVs as opposed to earlier models that carried a single warhead.



Although Secretary of Defense McNamara introduced "counterforce" targeting in 1962, the improvement in CEP and dramatic increases in the number of nuclear warheads in the American arsenal of the 1970s encouraged the Air Force to return to the more traditional practice of bombing precise military targets, instead of countervalue cities. Counter-force targeting identified en-emy military and industrial chokepoints—command centers, military industries and bases, and ICBM silos.

What-ever the targets selected, in the 1960s political leaders adopted a doctrine for deterring nuclear war known as "assured destruction," the capability to destroy an aggressor as a viable society, even after a well-planned and executed surprise attack on American forces. The Cuban missile crisis in Oct 1962, is widely recognized as the height of Cold War tension between the US and the USSR. This doctrine held that superpower strategic nuclear forces would be sized and protected to survive a nuclear attack and then to retaliate with sufficient force to ensure a level of destruction unacceptable to the other side. With such retaliatory destruction assured against an aggressor, no rational Soviet or American leader would consider starting a nuclear war. Over the next two decades the Air Force developed more capable satellite systems such as the Missile Defense Alarm System (MIDAS)—the first attempt at providing space-based detection and warning of long-range missile attacks. MIDAS 7, launched on 9 May 1963, proved the concept of infrared (IR) sensing from a nearly circular 2,000-mile orbit. The need for accurate information on Soviet nuclear testing led to the development of a space-based system that could specifically detect nuclear explosions. On 2 Sep 1959, the DoD directed the Advanced Research Projects Agency (ARPA) to undertake the development of the Vela Hotel nuclear detection program, which was a low-cost, automated nuclear detection satellite constellation. The first pair of Vela satellites was launched from Cape Canaveral, Florida, on 16 Oct 1963 and detected a nuclear blast the very next day.

Air Force leadership's vision for weather satellites was realized with the development of a dedicated military weather satellite system known initially as the Defense Satellite Applications Program (DSAP). The

initial DSAP military weather satellites were relatively unsophisticated, weighing about 430 pounds. One of the earliest Air Force satellite communication systems was the Initial Defense Satellite Communications Program (IDSCP). The first IDSCP satellite was launched on 16 June 1966. Another Cold War capability provided by early satellites was navigation. Although the Navy rather than the Air Force produced the first working satellite navigation system (Transit), an early Air Force navigation satellite program was designed to provide precise time and navigation information in three dimensions. Later, a joint Air Force and Navy program would result in what became known as the NAVSTAR Global Positioning System. The expansive spending, on both US and Soviet sides, for weapons and their supporting systems eventually led to an escalating and apparently unlimited strategic arms race, until 1972.

On 26 May 1972, the US and the USSR signed the Anti-Ballistic Missile (ABM) Treaty, which limited both sides to two ABM sites each, to protect the national capital and an ICBM complex. The treaty reinforced the continued effectiveness of assured destruction in deterring war in the face of new, destabilizing ABM weapons. SALT I, the Strategic Arms Limitation Treaty which was signed at the same time, limited the numbers of nuclear weapons, with the objective of obtaining a verified freeze on the

numerical growth and destabilizing characteristics of each side's strategic nuclear forces.

The Nixon administration adopted counterforce targeting, beginning with Single Integrated Operational Plan (SIOP) 5 of 1974. The Carter administration expanded it with Presidential Directive 59 and SIOP 5D. Counterforce, however, offered an option to assured destruction of a limited, prolonged nuclear war, based on accurate attacks with limited collateral damage, while maintaining a credible second strike capability. Increased defense spending of the early 1980s brought more mature space and missile programs, most of which are still in service, as replacements for the early space systems developed in the 1960s and 1970s. These included the Defense Support Program (early warning), the Defense Meteorological Satellite Program (weather), the Defense Satellite Communications System (communications), and the Global Positioning System (navigation). Concurrent with these various satellite constellations, the Air Force also developed the ground-based infrastructure to support, augment and complement the space-based portions of the systems. Among the ground-based missions were: ballistic missile warning (the Ballistic Missile Early Warning System, or BMEWS); surveillance of orbiting space objects (provided initially by systems such as Baker-Nunn cameras); and satellite command and control (by the Air Force Satellite Control Network, or AFSCN). In addition, the Air Force developed the launch support bases necessary to get satellites into space – one at Cape Canaveral, FL and the other at Vandenberg AFB, CA. The launch bases provided support not only for DoD sponsored systems but also NASA, other US government agencies, and commercial requirements.

In the late 1970s and early 1980s, Air Force leaders sensed the time had come to substantially reorganize the way the service managed its space systems. On 21 Jun 1982, Air Force Chief of Staff General Lew Allen appeared with Under Secretary of the Air Force Pete Aldridge to announce the formation of Space Command, which would be activated on 1 Sep 1982. Air Force Space Command's responsibilities grew quickly over the ensuing decade as it absorbed programs from Aerospace Defense Command, Air Force Systems Command, and Strategic Air Command. Eventually the command's missions included missile warning, space surveillance, satellite control, space defense, space support to operational forces, and launch operations. The organizational changes that led to the establishment of Space Command reflected a growth in the use of space systems in support of joint operations worldwide.

In an address on 23 Mar 1983, President Ronald Reagan proposed replacing the doctrine of assured destruction with one of assured survival, in the form of the Strategic Defense Initiative (SDI). SDI was to focus on the development and deployment of a combination of defensive systems such as space-based lasers, particle

beams, railguns, and fast ground-launched missiles, among other weapons, to intercept Soviet ICBMs during their ascent through the Earth's outer atmosphere and their ballistic path in space. While the ABM Treaty restricted various methods of testing SDI weapon systems, the end of the Cold War and collapse of the Soviet Union removed the justification for the level of research and development associated with this project, although research continued at a much-reduced level under the Ballistic Missile Defense Organization.

Beginning in March 1985, Soviet Communist Party General-Secretary Mikhail Gorbachev ini-tiated major changes in Soviet-American relations. The Inter-mediate Range Nu-clear Forces Treaty, in December 1987, eliminated medium-range nuclear missiles, including US Air Force ground-launched cruise missiles (GLCMs). Gorbachev's announcement in May 1988 that the Soviet Union, after 9 years of inconclusive combat, would begin withdrawing from the war in Afghanistan, indicated a major reduction in Cold War tensions, but it provided only a hint of the rapid changes to come. Relatively free and open Russian national elections in March 1989 followed by a coal miners strike in July shook the foundations of Communist rule. East Germany opened the Berlin Wall in November, which led to German reunification in October 1990. A coup against Gorbachev in August 1991 by Boris Yeltsin led to the dissolution of the Soviet

Union and its replacement by the Commonwealth of Independent States on 25 Dec 1991.

This chain of events brought major changes to American nuclear strategy. Under the Strategic Arms Reduction Treaty (START) I, signed by the United States and the Soviet Union in July 1991, the Air Force would be involved in reducing to a level of 6,000 total warheads on deployed ICBMs, SLBMs, and heavy bombers. START II, signed in January 1993, would reduce (upon entry into force) total deployed warheads to a range of up to 3,500 nautical miles (NMs). The resulting force structure (determined during the Nuclear Posture Review process overseen within his department by then Secretary of Defense Les Aspin),

would ultimately lead to the deployment of 500 single-warhead Minuteman III ICBMs, 66 B-52H, and 20 B-2 heavy bombers. Ninety-four B-1 heavy bombers would be reoriented to a conventional role by 2003, in addition to all Peacekeeper ICBMs being removed from active inventory through the elimination of their associated silo launchers. The Air Force, by presidential direction in September 1991, notified Strategic Air Command (SAC) to remove heavy bombers from alert status. SAC was subsequently inactivated several months later in June 1992. US Strategic Command replaced Strategic

Air Command, controlling all remaining Air Force and Navy strategic nuclear forces.

Rebuilding the conventional Air Force after Vietnam began with personnel changes. The Vietnam-era Air Force included many Airmen who had entered its ranks in World War II. President Nixon ended the draft in 1973 in favor of an "all volunteer" American military. The Air Force attracted recruits as best it could, but encountered problems with the racial friction and alcohol and drug abuse that reflected America's social problems. Enough Vietnam career veterans remained, however, to direct the new service and institute changes, one of the most noticeable of which was more realistic, and thus more dangerous, combat training. In combat simulations, Air Force pilots flew as aggressors employing enemy tactics. By 1975, their training had evolved into Red Flag at the US Air Force Weapons and Tactics Center at Nellis AFB, NV, where crews flew both individual sorties and formations in realistic situations, gaining experience before they entered actual combat. Colonel Richard "Moody" Suter is the father of Red Flag. As a major, working in the Pentagon in 1975, he took his vision and saw it through to fruition. Red Flag revolutionized Air Force training. General Robert Rutherford said, "He probably saved a lot of lives and made us the premier air Force in the world.""More than anybody else, I've ever know in the Air Force, he had a creative energy and innovative approach you just don't see," said Gen. Joseph Ralston.

Suter flew more than 200 combat missions in Vietnam,

was the first F-15 Eagle squadron commander, and an innovative genius. In addition to Red Flag, he's credited with founding the Air Force aggressor squadron, and the Warrior Preparation Center at Einsiedlerhof Air Station, Germany, used to train senior battle commanders in the art of war. Another Suter legacy is his driving force behind setting up Checkmate, the Air Force's think tank for wartime scenarios.

After his death in January 1996, the Warrior Preparation Center command section building and Red Flag

Building 201 at Nellis AFB, Nevada was named in his honor.

The vulnerability of air bases to enemy attack and sabotage had long been the Achilles heel of land-based air power. In Western Europe, living under the threat of a massive Warsaw Pact air offensive and land invasion, the US Air Force spearheaded an active program to improve the survivability and readiness of air bases. The effort was marked by the construction of thousands of reinforced concrete aircraft shelters and other hardened facilities, alternate runways, rapid repair elements, chemical weapons protection, and a host of other defensive measures.

The Air Force's post-Vietnam rebuilding also involved applying improved technology. The battle for control of the skies over North Vietnam underscored the need for a dogfighting aircraft that featured maneuverability before speed—one armed with missiles and cannon. Begun in the late 1960s and operational in the mid-1970s, the F-15 Eagle and the F-16 Fighting Falcon filled this need. The struggle against radar-guided antiaircraft artillery and SAMs in Vietnam encouraged the Air Force to pursue stealth technology utilizing special paints, materials, and designs that reduced or eliminated an aircraft's radar, thermal, and electronic signatures.

Operational by October 1980, the F-117 Nighthawk stealth fighter featured detection avoidance.

Other Vietnam War technologies included PGMs and bombs. From April 1972 to January 1973, the United States used over 4,000 of these early "smart weapons" in Vietnam to knock down bridges and destroy enemy tanks. Continued development of laser-guided bombs and electro-optically-guided missiles offered the prospects of pinpoint, precision bombing on which traditional Air Force doctrine rested—the destruction of chokepoints in an enemy nation's industrial web with economy of force and without collateral damage. These technologies, which afforded a strike precision far beyond that available to earlier airpower thinkers, sparked a revision of the traditional doctrine of strategic bombing. This revision took two forms. First,

the Air Force, to overcome numerically superior Warsaw Pact forces, cooperated with the Army in updating the tactical doctrine of AirLand Battle promulgated in Field Manual 100-5 in 1982. The Air Force would make deep air attacks on an enemy army to isolate it on the battlefield, conduct battlefield air interdiction (BAI) to disrupt the movement of secondary forces to the front, and provide close air support (CAS) to Army ground forces. The Air Force procured the A-10 Thunderbolt II CAS attack-bomber in the 1970s to support such missions.

Operation Rice Bowl, the attempt to rescue American

hostages from the United States embassy in Iran, ended in disaster at the Desert One refueling site in April 1980. Subsequent inquiries eventually led to the reorganization and revitalization of United States and Air Force special operations forces. Participation in three crises in the 1980s allowed the Air Force to test new ideas and technologies. Operation Urgent Fury (October 1983) rescued American students

and restored order on the island of Grenada. In this operation the Air Force primarily transported troops and cargo, but discovered problems with command, control, planning, and intraservice and interservice coordination. President Reagan called on England-based F-111s to strike against Libya on 19 Apr 1986, in support of his policies to counter state terrorism. Operation ELDORADO CANYON exposed continuing difficulties with target identification and intelligence, punctuated by some inaccurate bombing. Finally, Operation JUST CAUSE in 1989 again tested air operations, this time in Panama. The Air Force provided the airlift for troops and supplies, although the F- 117 Nighthawk stealth fighter made its debut when it and

an AC-130 Spectre gunship intimidated Panamanian troops loyal to the dictator Manuel Noriega.

DESERT STORM: The Air Campaign Against Iraq, 1990-1991

On 2 Aug 1990, Iraqi dictator Saddam Hussein ordered over 100,000 troops to invade oil-rich Kuwait, claimed as Iraq's 19th province. International condemnation followed and on 6 August the UN authorized an

economic embargo. The same day, President George H. W. Bush announced Operation Desert Shield, the deployment of US air and ground units to defend Saudi Arabia and Persian Gulf states. Within 18 hours of the order, Air Force Military Airlift Command (MAC) C-141 and C-5 transports delivered elements of the Army's 82d Airborne Division and the Air Force's 1st Tactical Fighter Wing (whose 48 F-15Cs flew direct).

Operation Desert Shield eclipsed the Berlin Airlift as the greatest air deployment in history. From 7 Aug to 8 Nov 1990, MAC cargo planes delivered defensive forces and from 9 Nov to Jan 1991 brought materiel for a counter-offensive. The "air bridge" spanned over 7,000 miles and included 20,500 strategic airlift missions. Desert Shield validated Air Force large capacity, heavy carriers: the Lockheed C-5A Galaxy and the Lockheed C-141A Starlifter. In total, the "heavies" carried 534,000 passengers and 542,000 tons of cargo during the Gulf War.

The Persian Gulf War represents the first, extensive and broad-based employment of space support capabilities. Coalition forces employed over 60 military satellites and others from the commercial and civil sectors during the conflict. DMSP provided dedicated meteorological support to forces in theater, which helped provide safe, highly effective planning and application of combat power in a harsh environment characterized by sandstorms and oil fires. Satellite-based systems delivered over 90 percent of all communications to and from theater due to the sheer volume and the lack of ground-based infrastructure in that part of the world. At the height of the conflict, 700,000 phone calls and 152,000 messages per day flowed in and out of theater over satellite links.

At 0100, 17 Jan 1991, three Air Force Special Operations MH-53J PAVE LOW helicopters led nine Army Apaches on

the first strike mission of Operation Desert Storm. Within hours, the world watched live television coverage of Iraqi skies filled with AAA fire, but with no apparent effect. Lockheed F-117A Nighthawks struck heavily defended targets with unprecedented precision. Under Horner's command, 2,700 aircraft from 14 countries and services implemented the master attack plan. The coalition effort overwhelmed the Iraqi air defense system with speed, surprise, precision, and mass. A flight of seven B-52Gs flew non stop from Barksdale AFB LA to strike Iraqi power stations and communications facilities with Air Launched Cruise Missiles (ALCMs). With a round-trip duration of 35 hours, the 14,000-mile raid was the longest combat mission in history and proof of the USAF's "Global Reach."

The first week of Desert Storm emphasized air supremacy and destroying the enemy's command and control system. Capt Jon K. "JB" Kelk, flying an F-15C, scored the first air-to-air kill by downing an Iraqi MiG-29. All total, coalition aircraft shot down 41 Iraqi aircraft with Capt Thomas N. "Vegas" Dietz and Lt Robert W. "Digs" Hehemann each credited with three kills. Additionally, Allied air forces destroyed 375 enemy aircraft and 594 hardened bunkers on the ground. Faced with coalition air dominance, 148 Iraqi aircraft fled to neighboring Iran, preferring internment to destruction.

The air campaign then "prepared" the battlefield by isolating Iraqi ground units, interdicting supplies, and reducing enemy combat power. Fairchild Republic A-10 Thunderbolt IIs ("Warthogs") and F-15Es introduced a new term, "tank plinking," as they destroyed the enemy's armored forces. General Dynamics F-111F "Aardvarks" dropped 4,600 of the 8,000 PGMs of the war. EF-111A electronic warfare aircraft provided tactical jamming, while combined RC-135 Rivet Joint,

E-8 Joint STARS, and E-3 AWACS aircraft added intelligence and command and control. Perhaps the most spectacular element, B-52s shattered Iraqi Army morale by massive bomb drops upon the enemy's forces. When one Iraqi commander asserted that he surrendered because of B-52 strikes, his interrogator pointed out that

his position had never been attacked by the Buff. "That is true, but I saw one that had been attacked," stated the Iraqi commander.

Not all aspects of the air campaign were successful. Early in the campaign, Saddam Hussein ordered launches of modified Soviet Scud missiles against Israel, Saudi Arabia, and the Persian Gulf states. On 18 Jan 1991, USAF A-10s, F-16s, and F-15Es with Low-Altitude Navigation and Targeting Infra-red for Night (LANTIRN) pods commenced the "Great Scud Hunt." Despite 2,767 sorties (22% of the strategic air phase),

air patrols did not destroy a significant number of the missiles. Iraqi camouflage, decoys, and employment tactics frustrated the effort. The enemy launched a total of 88 Scuds, including one that struck a US Army Reserve unit at Dhahran that killed 28 soldiers and wounded 98. The anti-Scud effort did limit Scud launches after the first 2 weeks of fighting and reduced the political impact of the weapon.

The DESERT STORM air campaign demonstrated airpower's impact on a conventional battlefield. Air Force space assets provided precision positioning and navigation to joint and coalition forces with the combat debut of the Global Positioning System (GPS). Allied forces employed GPS satellites for a variety of purposes: precision weapons delivery, artillery spotting, and maneuvering

of large troop formations—such as Gen Schwarzkopf's famous left hook through the featureless Iraqi desert. Space forces also provided the coalition and allies with advanced warning of Iraqi SCUD launches. DSP gave timely warning of the launch of Iraqi Scud missiles to US forces in theater and allowed Patriot batteries in Israel, Saudi Arabia, and Kuwait sufficient time to

engage the incoming Iraqi IRBMs. Space forces had a major political impact on the war with this capability by influencing Israel to remain neutral thereby preserving the integrity of the allied coalition. Over the course of the 44-day air campaign, the coalition flew 118,661 sorties, of which the Air Force flew 60%. The US-led coalition's 1991 Persian Gulf War brought

military space operations to the entire Joint community. The Persian Gulf War was the first conflict to highlight the force enhancement capabilities of space-based communications, intelligence, navigation, missile warning and weather satellites to US warfighters. Desert Storm also demonstrated the impact of PGMs upon modern war. Although PGMs accounted for only 8% of the 88,500 tons of bombs dropped, they achieved 80% of the known targets destroyed. While coalition ground forces delivered Gen Schwartzkopf's famous "Hail Mary" outflanking maneuver that applied the final blow to the Iraqi military forces, airpower had set the stage for victory. As the Gulf War Air Power Survey stated:

It was not the number of Iraqi tanks or artillery pieces

destroyed, or the number of Iraqi soldiers killed that mattered. It was the effectiveness of the air campaign in breaking apart the organizational structure and cohesion of enemy military forces and in reaching the mind of the Iraqi soldier that counted.

Operation Allied Force

The breakup of Yugoslavia proved to be the North Atlantic Treaty Organization's (NATO) greatest challenge in the 1990s. Militant Serbian nationalism and a policy of "ethnic cleansing" promoted by Yugoslavian President Slobodan Milosevic created a crisis in Kosovo in 1999. Meanwhile, Albanian separatists in the Kosovo Liberation Army (KLA)

fanned the flames of violence. After diplomatic talks broke down, NATO worried about potential genocidal civil war and destabilization throughout the Balkans. As NATO debated intervention in early 1999, President Milosevic unleashed a ruthless offensive designed to crush the KLA and drive ethnic Albanians out of Kosovo. Faced with a massive humanitarian crisis, NATO turned to airpower.

After Desert Storm in early 1992, General Merrill McPeak, Chief of Staff of the Air Force, revised the mission of the Air Force: "to defend the United States through control and exploitation of air and space." Resultant organizational changes permitted the Air Force to attain an unprecedented level of integration between air and space capabilities, by the time the Air War over Serbia (AWOS) commenced in 1999. During AWOS, AFSPC deployed nearly 150 space professionals to nine different locations in theater. During the conflict, multi-source Tactical System/Combat Track I modifications to five B-52s and two B-1s allowed near real-time information to be flowed to the cockpits. The space-enabled information included threats, target updates, imagery, and secure communications with the wing operations center. GPS satellites provided terminal guidance data for Joint Direct Attack Munitions (JDAMs), Conventional Air Launched Cruise Missiles (CALCM) and Tomahawk Land Attack Missile (TLAM) deliveries. This conflict was the first operational employment of JDAM, demonstrating precision adverse weather delivery of multiple weapons against multiple aim points on a single pass.

Optimistic policymakers looked to NATO's successful 2-week Operation Deliberate Force in 1995 that brought relative peace to Bosnia. On 24 Mar 1999, President Bill Clinton commenced Operation Allied Force (OAF), announcing three objectives: demonstrate NATO's opposition to aggression; deter Milosevic from escalating attacks on civilians; and damage Serbia's capability to wage war against Kosovo. Milosevic and Serbian forces presented US and NATO forces with an opponent with a capacity for skilled propaganda and utter ruthlessness. The ensuing 78-day battle would be directed against both the Serbian military and Milosevic's propaganda efforts.

From 24 Mar to 9 Jun 1999, NATO air forces walked a political tightrope. In over 38,000 sorties, 13 of NATO's 19 nations attempted to pressure Milosevic, to destroy Serbian

The Global War on Terrorism:

Operations Noble Eagle, Enduring Freedom, and Iraqi Freedom

On 11 September 2001, nineteen terrorists from Al Qaeda, an Islamic extremist group, highjacked four airliners and crashed them into New York City's World Trade Center, the Pentagon, and a remote field in Pennsylvania, killing about 3,000 people in all. In response, President George W. Bush declared a global war on terrorism. Operation Noble Eagle immediately focused on protecting the US homeland from both internal and external air attacks—of the nature used on 9-11. US Air Force fighter, tanker, and surveillance air assets provide up to 24-hour intercept response coverage for virtually the entire U.S in the form of ground alert and airborne combat air patrols over designated locations.

Operation Enduring Freedom (OEF) focused an international coalition, with forces from the United Kingdom, Australia, Canada, the Czech Republic, Denmark, France, Germany, Italy, Japan, Jordan, the Netherlands, New Zealand, Norway, Pakistan, Poland, Russia, Spain, Turkey, and other nations, to remove Afghanistan's Taliban government which sponsored Al Qaeda terrorism and provided a safe haven for Osama bin Laden, its leader.

On 7 October 2001, fifteen US Air Force bombers joined 25 US Navy carrier-strike aircraft and 50 US and British sea-launched Tomahawk cruise missiles in the first wave of OEF military operations. In the opening days of the campaign, joint-service airpower destroyed Taliban air defenses, command centers, and other fixed targets and protected humanitarian relief missions to the Afghan people. In contrast to Desert Storm and Allied Force, Taliban and Al Qaeda forces presented few

fixed targets suitable for air attack. Instead, Air Force assets provided flexible, "time-critical targeting." USAF B-1 and B-52 bombers carrying GPS-guided Joint Direct Attack Munitions (JDAMs) proceeded to engagement zones, where ground-based forces directed attacks. GPS-guided munitions were employed with great accuracy, enabling air planners to reduce the number of air sorties required to destroy a particular objective. Combat operations in Afghanistan began with small groups of elite American military forces deployed to support anti-Taliban Afghani fighters. A number of the deployed troops carried 2.75-pound Precision Lightweight GPS Receivers (PLGRs) and satellite-based

communications devices. Air Force combat controllers, such as MSgt Bart Decker were some of approximately 300 Army, Navy, and Air Force special operations personnel, augmenting the Afghan Northern Alliance. On 13 November 2001, Kabul, Afghanistan's capital, fell to coalition forces.

The defeat of the Taliban government showcased the capabilities of high-tech weapons, global

communications, and high-quality training. Space-based communications satellite constellations such as DSCS III, upgraded Milstar, and the Global Broadcast System (GBS), provided allied forces with an array of reliable, improved, high-speed, secure and non-secure, long-range communications options. The amount of intelligence and other data relayed through space was unprecedented. DMSP satellites provided timely meteorological information in support of the air campaign; the space-based weather information was also invaluable to ground forces that often had to endure a harsh climate. As space becomes a more integral part of the military tool kit in both peace and war, the demand for more and better space capabilities will increase and the ability to reach orbit will be critical. To meet this need, the Air Force developed a new family of expendable launch systems, the Evolved Expendable Launch Vehicles or EELV. In addition, NASA and the Air Force have undertaken joint efforts to explore improved Reusable Launch Vehicle technology. Across the spectrum of space capabilities, new technology and innovative applications are leading to significantly advanced systems. The Air Force has proceeded with the development of a replacement

for its DSP program, the Space Based Infrared System (SBIRS), which will provide unprecedented missile detection and tracking capability. Overall Air Force space systems played an even more significant role in Operation Enduring Freedom than they had during Operations Desert Storm and Allied Force.

Afghanistan challenged coalition forces with its rugged terrain, complex political relationships, and distance from operating bases (Navy aircraft flew 700 miles one way from carriers and Air Force bombers ventured 2,500 miles one way from Diego Garcia). Air Force KC-135 tankers, C-17 and C-130 air lifters, RED HORSE Civil Engineering teams, space-based Global Positioning System (GPS) and intelligence-gathering satellites, and other support functions proved the unsung heroes of the campaign. Their effectiveness reduced the casualties of combat troops. In the first 18 months of OEF, the Air Force flew more than 85,000 sorties (75% of the total effort), dropped 30,750 munitions, delivered 487,000 tons of cargo, and provided 3,025 Intelligence, Surveillance, and Reconnaissance (ISR) missions. On 19 Mar 2003 a coalition of American and allied forces entered Iraq to end regime of Saddam Hussein and to free the Iraqi people beginning Operation Iraqi Freedom. One key innovation occurred early in this ongoing campaign when the CENTCOM Commander designated the Combined Forces Air Component Commander (CFACC) the Space Coordinator. Throughout the war space experts issued a Space Tasking Order (STO) that ensured space resources were ready to support combat operations. Space assets were refined to provide maximum capabilities to Allied forces. In a summary of space support during the conflict, Brigadier General Larry D. James, the senior space officer assigned to the Combined Air Operations Center (CAOC) during

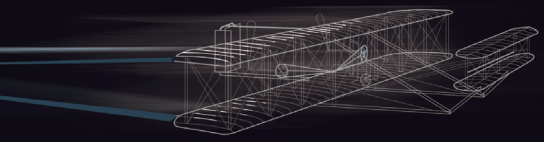
the war, said, "I think we have truly integrated air and space operations better than ever before to achieve the battlefield effects we wanted—shorten the kill chain and be able to respond dynamically to what was going on out there." As noted by former Chief of Staff of the Air Force Michael E. Ryan in Jan 2000, "Never again can Airmen apply airpower without the seamless integration of space assets into their operational art, mind-set and culture."

Although the remnants of Al Qaeda eluded capture, President Bush voiced the resolve of America: "Our war against terror is a contest of will in which perseverance is power. Whatever the duration of this struggle, and whatever the difficulties, we will not permit the triumph of violence in the affairs of men—free people will set the course of history" (28 January 2003).

Conclusion

From Kitty Hawk to Kosovo, the record of air and space power emphasizes powerful themes. The interplay of doctrine, technology, tactics, and strategy must be sustained by training, logistics, supply, and support infrastructure. Although history may not provide hard and fast lessons, it offers inspiration, insight, and examples to spur your thinking. Today's Airmen draw from a proud heritage of sacrifice, valor, and success. Just as our predecessors triumphed over the challenges at St. Mihiel, Schweinfurt, and MiG Alley, you will face new challenges with courage, skill, innovation, and perseverance.

All Airmen who have
gone before
wish you the best in your
Air Force experience



AIRMAN EXEMPLARS

THE AIRMEN
WHO FOLLOW
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REPRESENTATIVE SAMPLE
OF THE DIVERSE TEAM
OF AIRMEN
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AND
CONTINUE TO
INSPIRE AIRMEN...

Orville and Wilbur Wright

The Wright brothers, bicycle manufacturers from Dayton, OH, achieved the first powered, sustained, and controlled flight of an airplane in 1903, beginning the age of heavier-than-air aviation. Wilbur was born on 16 Apr 1867, near Millville, IN, and Orville was born on 19 Aug1871, in Dayton, OH. They became interested in mechanical flight after reading about Otto Lilienthal's successful glider experiments in Germany during the mid-1890s. In contrast to other experimenters, the Wrights concentrated their efforts on determining a three-dimensional system of control, using an elevator and twisting the wings, called warping, in combination with a vertical rudder. A series of biplane gliders in 1902 led to a perfectly controllable glider capable of generating sufficient lift. Subsequently, the brothers designed and built a relatively lightweight gasoline engine and revolutionary, highly efficient propellers for the 1903 flyer. On 17 Dec 1903, this aircraft achieved four manned flights at Kitty Hawk, NC. In 1904 and 1905, the Wright brothers conducted experiments at Huffman Prairie near Dayton and introduced a new improved aircraft each year. The 1905 Wright flyer is generally recognized as the first practical airplane. It could turn, bank, fly figure eights, and remain aloft for over 30 minutes. Still it was not until 1907 that the Signal Corps

established an Aviation Section and issued a bid for a military airplane. Tests of the Wright military machine began at Ft. Myer, VA, in 1908. A crash on 17 September, however, seriously injured Orville, killed his passenger Lt Thomas E. Selfridge, and temporarily interrupted the tests. A new machine accepted in the fall of 1909 became, Signal Corps No. 1, the US Army's first airplane. Subsequently the Wright brothers trained several US Army pilots—among them Henry H. "Hap" Arnold, future commander of the US Army Air Forces during World War II. The Wright Aircraft Company sold the Army several airplanes. The Wrights, however, remained wedded to the wing warping system of control and their airplanes became increasingly inferior and uncompetitive, while those of their rivals, especially Glenn Curtiss, improved rapidly in performance. On 30 May 1912, Wilbur died of typhoid fever. Orville Wright later sold the Wright Company and assumed a less active role in aviation. He remained, however, the "father" of flying and highly honored individual until his death on 30 Jan 1948.

Col William "Billy" Mitchell

Col Billy Mitchell was an airpower visionary who saw the airplane dominating warfare and called for an air force independent of the US Army.

Born of wealthy American parents in Nice, France, on 29 Dec 1879, he grew up in Wisconsin. Educated at Racine College and at Columbian College, now George Washington University in Washington, DC, he abandoned college in 1898, at the beginning of the Spanish-American War, to enlist in the volunteers. His father, a US Senator, applied influence, and he received a commission. Intelligent, able, and aggressive, Mitchell was the youngest captain ever selected to join the General Staff, in 1912.

In 1915, Mitchell joined the Aviation Section of the Signal Corps and the following year he learned to fly, taking private lessons. During much of 1918, he commanded most of the US air combat units at the front. To a doctrine of the offensive, borrowed from the British, he added the use of aircraft in mass to overwhelm the enemy. In particular, in September he massed over 1,500 US and Allied aircraft in support of the St. Mihiel offensive by the US First Army. In April 1921, Brig Gen Mitchell became Assistant to the Chief of the Air Service. His outspoken advocacy of a separate air force, critical remarks about the poor quality of the Air Service, and his criticism of superiors caused considerable controversy. Worse was his methodology, which relied on appeals to Congress

and the public outside the chain of command, often in violation of direct orders. His claims that the airplane could sink battleships ultimately led to bombing trials in June 1921. During these trials, the 1st Provisional Air Brigade under Mitchell's leadership sank the former German battleship Ostfriesland, probably the high point of Mitchell's military career.

Maj Gen Mason Patrick, appointed commander of the Air Service following the bombing trials, was able to keep Mitchell out of trouble for a time, but in 1925 further activities led the War Department to refuse to reappoint him as Assistant Chief. Mitchell reverted to his permanent rank of colonel—the brigadier rank was temporary—and was assigned to Fort Sam Houston.

Even from Texas, Mitchell used the press to continue to advocate an independent air force. After the Navy's dirigible Shenandoah was destroyed in a storm, he charged them with "incompetency." President Coolidge personally ordered Mitchell's court-martial. He was found guilty of insubordination. On 1 Feb 1926, he resigned from the Army. Mitchell died on 19 Feb 1936.

Maj Gen Benjamin D. "Benny" Foulois

Maj Gen Foulois was a pioneer aviator and the first commander of an American air unit in the field. He was born in Connecticut on 9 Dec 1879. He enlisted in the Army at the time of the Spanish-American War and was commissioned during his service in the Philippines in 1901. In 1907, Foulois entered the Aviation Section of the Signal Corps. In 1908 and 1909, Foulois participated

in the acceptance tests of the Army's first semi-rigid dirigible and its first airplane, a Wright flyer designated Signal Corps (SC) No. 1. In 1910, Foulois took SC No. 1 to Fort Sam Houston, TX, where he conducted tests to demonstrate its military usefulness. He remained in aviation until his retirement in 1935. In subsequent years, Foulois participated in all aspects of early US Army aviation, and in 1915 completed the organization of the Army's first operational unit, the 1st Aero Squadron. Foulois commanded the squadron during the Mexican Punitive Expedition in 1916-1917—the first deployment of a US Army air unit into the field. Following the Punitive Expedition, Foulois went to Washington, DC where he played a major role in planning and implementing the $640 million aviation program begun following US entry into World War I. Foulois was promoted to brigadier general and named Chief of the Air Service for the American Expeditionary Force in November 1917. He was unsuccessful, however, and was replaced by Mason

M. Patrick in May 1918. Foulois's subsequent work, especially as Patrick's assistant, however, played a major role in Air Service success during the war.

In 1927, he moved to Washington DC to become Assistant Chief of the Air Service, and in 1931 was promoted to major general and named Chief of the Air Corps. Foulois proved a less-than-effective Air Corps leader. Always a hands-on individual, he tried to spend more time in the cockpit and less in the office. A firm advocate of strategic bombardment and an independent air force, his testimony before Congress was usually blunt and straightforward.

In 1934, Foulois agreed on short notice that the Air Corps could fly the US mail. The service proved ill-equipped for the effort and subsequently damaged Foulois' reputation. However, through his efforts, the Air Corps received its first B-17 heavy bombers and organized General Headquarters (GHQ) Air Force in 1935, a significant step toward independence for the Air Force. Gen Foulois retired on 31 Dec 1935 and died on 25 Apr 1967.

General of the Air Force Henry Harley "Hap" Arnold

General Arnold was an aviation pioneer and is generally recognized as the father of the modern US Air Force. He commanded the US Army Air Forces during World War II. Arnold was born in Gladwyne, PA, on 25 Jun 1886 and graduated from West Point in 1907. Originally an infantryman, he became a flyer in 1911. His career paralleled the early development of US military aviation. In April 1911, the Signal Corps sent Arnold to Dayton, OH, where Wilbur and Orville Wright taught him to fly. In 1912, he won the first Mackay Trophy for making the most meritorious military flight of the year. Promoted to temporary colonel, Arnold spent almost all of World War I as the highest-ranking flying officer in Washington DC, and he would apply the lessons he learned during the Great War to the development of the US Army Air Forces during World War II. Arnold began his rise to command of the Army Air Corps during the interwar years, by serving in Air Service headquarters in Washington DC, and in several of the most important operational flying commands in the field. Promotion to lieutenant colonel came in 1931 and with it command of March Field CA. In 1934, he took command of the "western zone" of the US while the Air Corps made its disastrous attempt to fly the US mail. In 1934, Arnold again won the Mackay Trophy by leading a flight of 10

B-10 bombers from Washington DC to Fairbanks, AK. On 29 Sep 1938, Arnold became Chief of the Air Corps. On 30 Jun 1941, he became Commanding General of the US Army Air Forces (USAAF).

Gen Arnold commanded America's aerial war effort in World War II. Under his direction the USAAF expanded from 22,000 officers and men with 3,900 planes to nearly 2,500,000 men and 75,000 aircraft at the height of the war. Throughout the war he remained committed to strategic bombardment and to laying the foundation for an independent air force following the war. He exercised direct command over the B-29s of Twentieth Air Force in 1944 and 1945 during their assault on Japan. Supervising the air war on a global scale proved a strenuous task. Arnold had a severe heart attack that led to his retirement on 30 Jun.

On 7 May 1949, Congress appointed Arnold the first and only five-star General of the Air Force. (He became a five-star General of the Army in 1944). Hap Arnold died at his home in Sonoma, CA, on 15 Jan 1950.

Gen Carl A. "Tooey" Spaatz

General Spaatz, first Chief of Staff of the U. S. Air Force, was born on 28 Jun 1891, in Boyertown, PA. He graduated from West Point in 1914 and entered the Aviation Section of the Signal Corps in October 1915. He won his wings in 1916. During World War I, Spaatz served in France. He flew in combat for only 3 weeks, but managed to shoot down three German planes. Carl Spaatz was one of the pioneering aviators of the interwar years. For nearly 1 week, between 1 - 7 Jan 1929, Spaatz and several other officers kept the Question Mark, a Fokker tri-motor, aloft over California. During the 151-hour flight, the Question Mark received some 37 air-to-air refuelings, nine at night. In June 1933, he was sent to Washington DC, as Chief of the Air Corps Training and Operations Division. While attending the Command and General Staff School at Fort Leavenworth KS, in September 1935, he was promoted to lieutenant colonel. In 1936, Spaatz was sent to the 2d Bomb Wing at Langley Field VA, as executive officer. He returned to Washington in 1939 to serve as Assistant Executive Officer to the Chief of the Air Corps. In November 1939, he pinned on his eagles and went to England as a military observer. In October 1940, Spaatz returned to Washington to receive his first star and assume the position of Assistant to the Chief of the Air Corps.

After the war began, Spaatz advanced rapidly through

a succession of jobs. He commanded Eighth Air Force before becoming Commander of the Northwest African Air Forces. On 6 Jan 1944, Lt Gen Spaatz was given command of US Strategic Air Forces in Europe with the task of "softening up" Hitler's "Fortress Europe" before the Allied invasion in June. Gen Spaatz pinned on his fourth star in March 1945, as he took over US Strategic Air Forces in the Pacific Theater. He supervised the final strategic bombing of Japan, including the atomic bomb missions against Hiroshima and Nagasaki in August 1945.

In February 1946, Spaatz became Commanding General of the Army Air Forces and in September 1947, President Harry S. Truman appointed him Chief of Staff of the new United States Air Force. He retired on 30 Jun 1948. In retirement he was Chairman of the Civil Air Patrol and Chairman of the Board of the Air Force Association from 1940 to 1951. Gen Spaatz was a leading advocate of an Air Force Academy. He died in Washington DC, on 14 Jul 1974.

Lt Gen Frank Maxwell Andrews

General Andrews is considered by many to be one of the founding fathers of our modern Air Force and commander of the first combat air force. At the time of his death in an aircraft accident near Iceland on 3 May 1943, Lt Gen Frank M. Andrews was one of the most promising Army Air Forces generals. Born in Nashville, TN, on 3 Feb 1884, he graduated from West Point in 1906 and entered the cavalry. Andrews served at several posts from the Philippines to Vermont before joining the Aviation Division in August 1917 for duty in Washington, DC, at the Office of the Chief Signal Officer. In 1918, he was assigned to the Army General Staff's plans division. He was sent to Germany in August 1920 for 3 years of public relations and civil affairs duties. Andrews returned to Kelly Field TX in 1923 to serve as an executive officer and, eventually, Commandant of Flying. After attending the Air Corps Tactical School, he was assigned to 2d Wing Headquarters, Langley Field VA as a staff officer. Andrews completed the Army War College in May 1933, and subsequently became Commander, 1st Pursuit Group at Selfridge Field MI. In October 1934, he returned to Washington for a second tour with the General Staff.

In March 1935, Brig Gen Andrews became the commander of the newly created General Headquarters Air Force (GHQAF). In August 1939, he became the

Army's Assistant Chief of Staff for Operations and Training. Early in 1940, Andrews pinned on his second star and in September 1941 was named commanding general of the Caribbean Defense Command.

Andrews' third star came shortly after America entered World War II. Andrews became Commander, US Forces in the Middle East and, in February 1943, was named Commander, US Forces in the European Theater. His career might have rivaled that of Eisenhower or Arnold, had he not died in the aircraft accident in 1943. In June 1949, Andrews AFB in Maryland was named in his honor.

Gen Ira Clarence Eaker

Ira Eaker, aviation pioneer and articulate advocate of aerospace power, was born in Field Creek, TX, on 13 Apr 1896. In 1917, he graduated from Southeastern State Teachers College. After commissioning as a lieutenant in the Army reserve, he attended flight school. His first assignment was to the Philippines, where Eaker did graduate work at the University of the Philippines before returning to Mitchel Field, New York in 1922. While serving in New York, he studied law at Columbia University.

Gen Eaker was a daring and innovative aviation pioneer. He was one of the pilots in the Pan-American goodwill tour of 1926 and 1927. Additionally, he flew in the first extended aerial refueling experiment in 1929, keeping a plane aloft for 151 hours.

In the mid-thirties, as war clouds gathered over Europe, Ira Eaker returned to Washington, DC, to serve in the office of the Chief of the Air Corps. In 1940, as a lieutenant colonel, he became commander of the 20th Pursuit Group at Hamilton Field. In January 1942, shortly after the United States entered World War II, Eaker took command of the 8th Bomber Command and was promoted to brigadier general. A strong advocate of daylight strategic bombardment, he convinced Prime Minister Winston Churchill that it had merit. Eaker directed the daylight campaigns that

pounded the German military and industrial base of Nazi-occupied Europe and Germany.

In September 1943, after promotion to lieutenant general, he served as commander of the Mediterranean Allied Air Forces. After the war, until he retired from the Army in August 1947, Gen Eaker was Deputy Commander of the USAAF and Chief of the Air Staff.

In 1947, Gen Eaker joined the aerospace industry to become vice president of Hughes Tool Company, and, from 1957 to 1961, served as a vice president of Douglas Aircraft. In retirement, Gen Eaker remained active as a writer. His columns and articles appear in numerous newspapers and several military journals. President Reagan promoted him to four-star general on 10 April 1985. He died 6 Aug 1987.

Maj Gen Oliver P. Echols

Logistics play a vital role in warfare. Oliver P. Echols, a pioneer logistician who coordinated the rapid expansion of America's air arsenal during World War II, was born in Charlottesville, VA, on 4 Mar 1892.

Echols attended Virginia Polytechnic Institute and the University of Virginia, graduating in 1913. Shortly after graduation he enlisted in the US Army. He was commissioned in 1916, then went to Europe with the Air Service in July 1917. He commanded the 1st Observation Group and later became chief of aviation for the 1st Army Corps. During World War I, Echols saw action in several battles including those of the Chateau-Thierry, Aisne, St. Mihiel, and in the Meuse-Argonne offensive.

After the war, following several flying assignments, Echols served in the Air Corps Experimental Engineering Section from 1927 to 1930. The following year he became chief of the Air Corps Procurement Section. After graduating from the Air Corps Tactical School in 1932, Echols returned to the procurement field as Chief Engineer of the Air Corps Materiel Division. In 1938, he advanced to the assistant chief's position. Echols won his first star in October 1940 and became chief of the division. Throughout World War II, Gen Echols coordinated the most massive aircraft procurement program in history, as Chief, AAF Materiel Division. In 1947, Maj Gen Echols retired to become president of the Aircraft Industries Association. He died on 15 May 1954.

Capt Lillian K. Keil

This pioneer in passenger care would later successfully combine her two careers (one of the first airline flight attendants and Air Force flight nurse) and become the most decorated woman in US military history. Keil became one of the first stewardesses hired by United Airlines when the United States entered World War II. She was later accepted into the Army Air Forces and by the summer of 1943, she was in England pulling wounded and frostbitten crewmen out of B-17s returning from bombing raids over Europe. On 06 June 1944, she climbed aboard a C-47, D-Day had come with her heading for Normandy to collect the wounded. During the war, Keil made 250 evacuation flights, 23 of them transatlantic.

After World War II ended, Keil returned to United Airlines as an assistant chief stewardess. In 1950, she returned to duty as an Air Force flight nurse and flew to Korea. During the next 16 months, Keil flew 175 air evacuations out of Korea, logging 1,400 hours of flight time, while assigned to the 801st Medical Air Evacuation Transportation Squadron.

By rough calculation, the retired Army Air Forces captain tended to more than 10,000 wounded soldiers, sailors and Marines in the air. She was awarded 19 medals, including a European Theater medal with four battle stars, a Korean service medal with seven battle stars, four air medals and a Presidential Citation from the Republic of Korea.

Honored several times by her hometown of Covina Hills, Calif., she is still active with the Veterans of Foreign Wars.

Gen George Churchill Kenney

The USAAF produced a number of great operational air commanders in World War II. Although such leaders as Spaatz, Eaker, LeMay, and Doolittle richly deserve the acclaim they have received, some historians and airmen would rank George C. Kenney first among equals for his ability to overcome severe organizational, logistical, personnel, technical, and strategic difficulties.

Kenney distinguished himself in World War I, flying 75 missions, downing two German planes, and receiving the Distinguished Service Cross and Silver Star.

His experience in the Army Air Corps between the wars gave him the kind of exceptional background that enabled him to command air forces with such success during World War II. He was the quintessential Air Corps officer in the sense that his experience encompassed a broad range of functions, from maintenance, supply, and production to strategy, tactics, and operations. He gained a reputation as a technical and tactical innovator.

In the Southwest Pacific Area during World War II, as commander of the Allied Air Forces and the Fifth Air Force, Kenney was MacArthur's Airman. He created clear lines of authority and instituted new supply and maintenance programs. Confident without being cocky, he commanded with authority and won the respect and admiration of his men. Perhaps the most

daring and innovative commander of the war, Kenney gained Gen Douglas MacArthur's confidence because he knew how to run combat air forces and produced results quickly.

With the end of the war in the Pacific, Gen Arnold cabled Kenney: "It may truthfully be said that no air commander ever did so much with so little." MacArthur wrote: "Of all the commanders of our major Air Forces engaged in World War II, none surpassed General Kenney in those three great essentials of successful combat leadership-aggressive vision, mastery over air strategy and tactics, and the ability to exact the maximum in fighting quality from both men and equipment." He died 9 Aug 1977.

Gen James Harold Doolittle

In a career of long usefulness, Jimmy Doolittle was an air leader, aeronautical engineer, airplane racer, businessman, general, oil company executive, special assistant to the Chief of Staff of the Air Force, and holder of the Medal of Honor. Doolittle was born on 14 Dec 1896, in Alameda, CA. After a year at the California School of Mines he joined the Signal Corps Reserve in 1917 and earned his wings in 1918. The next 4 years saw a variety of assignments in the aviation section of the Signal Corps during which he demonstrated exceptional ability as a pilot and as a daredevil. He also continued his education by earning a degree from the University of California in 1922, an M.A. from MIT in 1924, and a Ph.D. in 1925.

His aviation accomplishments became legendary. In September 1922, he flew a DH-4 coast-to-coast in 22 hours, 35 minutes with only one refueling stop. In 1925 he won the Schneider Cup race, setting a speed record for seaplanes at 245.713 mph. He helped develop fog-flying equipment in 1928, which led to widespread use of the artificial horizontal and directional gyroscopes. He made the first "blind" flight completely dependent on instruments, for which he won the Harmon Trophy. He served as Army advisor on the building of Floyd Bennett Field in New York.

Doolittle resigned his regular commission in 1930 to become manager of Shell Oil's aviation department.

As part of his duties with Shell Oil, he helped develop high octane gasoline and sold the Air Corps on the development of high-compression engines using that fuel.

Gen Hap Arnold brought Doolittle back to active duty in 1940 to troubleshoot engine and aircraft development, but he is best remembered for leading the 18 Apr 1942 B-25 raid on Tokyo launched from the deck of the aircraft carrier Hornet. Though all 16 aircraft were lost, the raid restored American morale and damaged Japanese confidence in victory. It won Doolittle the Medal of Honor and promotion to brigadier general.

Promoted to major general in November 1942, he commanded Twelfth Air Force in North Africa, and in January 1944 he took command of Eighth Air Force in England. He was promoted to lieutenant general on 13 Mar 1944.

After World War II, Doolittle returned to civilian life as vice president of Shell Oil. He was promoted to the rank of General on the Air Force Retired List in June 1985. He died on 27 Sep 1993.

Maj Gen Claire Lee Chennault

Known affectionately as "Old Leather Face," Claire Lee Chennault, famed leader of the Flying Tigers, was born in Commerce, TX, on 6 Sep 1890. He grew up in Louisiana and attended Louisiana State University before joining the US Army.

Chennault was commissioned a first lieutenant in November 1917 and earned his wings at Kelly Field TX, in 1919. During the 1920s, Chennault earned a reputation as a talented "stick and rudder man" and an absolute master of pursuit (fighter) tactics. Capt Chennault graduated from the Air Corps Tactical School (ACTS) in 1931, then remained at the school as an instructor, eventually becoming head of the Pursuit Section. During the 1930s, instructors at the ACTS such as Harold George, Robert Olds, and Kenneth Walker developed a doctrine of high altitude, daylight, precision bombing of key enemy industrial and military targets using heavy bombers. In contrast, Chennault argued an opposing viewpoint that denied bomber ascendancy, stressed the importance of pursuit aviation, and advocated a system of air defense based upon early warning of an enemy attack. Technology in the 1930s was not in Chennault's favor. Bombers like the B-10 and B-17 became larger and faster, and pursuits fell increasingly behind. Forced to retired in 1937 for health reasons, Chennault went to China

shortly thereafter to train pilots for the Chinese Air Force.

In 1941, Chennault recruited American military pilots and organized the American Volunteer Group (AVG) under a carefully hidden Roosevelt Administration program to provide an air force for Chinese leader Chiang Kai-shek. Chennault trained three squadrons of "Flying Tigers" in tactics he had developed that took advantage of the strengths of his Curtiss P-40s and exploited enemy weaknesses.

Though the AVG did not enter combat until after Pearl Harbor, the unit gained fame for its victorious exploits during the first 6 months of World War II. In April 1942, the US Army Air Forces recalled Chennault to active duty in the grade of major general as Commander, Fourteenth Air Force, in China. In that capacity he fought two wars: one against the Japanese, and another against the supply and equipment problems in isolated China.

In October 1945, Gen Chennault retired again, and in 1946 became president of the China-based Civil Air Transport Company and assisted Chiang Kai-shek's losing fight against Chinese Communist forces. On 18 Jul 1958, the US Air Force promoted Chennault to the honorary rank of lieutenant general. He died 9 days later, on 27 Jul 1958.

Gen Curtis Emerson LeMay

Curtis E. LeMay, who made the Strategic Air Command the world's premier force, was born on 15 Nov 1906. He attended Ohio State University and was commissioned through the ROTC program in 1928. His military career began in September 1928 with flight training at March Field CA.

Gen LeMay flew pursuit planes until 1937, when he transferred to the 2d Bomb Group at Langley Field VA. He gained a reputation as an outstanding pilot and an exceptional navigator. Accordingly, in late 1937 and early 1938, he served as lead navigator for two mass flights of B-17s to South America.

LeMay was promoted to captain in January 1940, major in March 1941, and lieutenant colonel in January 1942. He pinned on eagles 3 months later, when he took command of the 305th Bombardment Group at Muroc, CA. Later that year his group joined the Eighth Air Force in England. LeMay's no-nonsense approach to combat won him his first and second stars in September 1943 and March 1944, respectively. In August 1944, he assumed command of the 20th Bomber Command in the Pacific. His B-29s were charged with destroying Japan's war-making potential.

After the war, LeMay served at the Pentagon before his promotion and assignment as Commander, US Forces

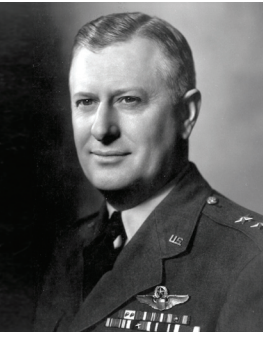
in Europe, in October 1947. His success at directing the airlift of supplies to Berlin in 1948 made him the choice for Commander-in-Chief, Strategic Air Command (SAC), in October 1948.

LeMay made SAC the world's most powerful nuclear force. In the days before the deployment of guided missiles, LeMay developed SAC's policy of constant alert, keeping some bombers aloft at all times, ready to respond to a Soviet attack.

In 1957, Gen LeMay became Air Force Vice Chief of Staff and in June 1961 rose to Chief of Staff. He held that post until his retirement in February 1965. In 1968 he became the vice presidential candidate on the American Independent Party ticket with Alabama's Governor George C. Wallace. After defeat in the November election, LeMay returned to private life as chairman of the board of an electronics firm. He died on 1 Oct 1990.

Lt Gen William H. Tunner

Known as the outstanding practitioner of air logistics and air mobility in US Air Force history, Lt Gen William H. Tunner was born in Elizabeth, NJ, in 1906. He graduated from the US Military Academy in 1928, entered the Air Corps, and during the 1930s earned a reputation as an excellent pilot and hardworking, intelligence officer.



Early during World War II, Tunner helped create the US Army Air Forces' Ferrying Command. At the time that Ferrying Command became Air Transport Command (ATC), it was delivering 10,000 aircraft monthly from factories at home to theaters of operation around the world.

In 1944, Tunner took com-mand of the "Hump" airlift operation supplying China from India over some of the world's highest mountain ranges. The often appalling terrain and weather, and the shortages of equipment, facilities, and aircraft made the "Hump" a difficult operation. Tunner refined and standardized every element of flying the "Hump," instituted assembly-line maintenance, systemized cargo-handling procedures, emphasized flight safety, and imbued the operation with a driving commitment to increased tonnage. In July 1945 alone, ATC delivered 71,042 tons of cargo. In June 1948, ATC and the Naval Air Transport Service merged, becoming the Military Air Transport Service (MATS), and Tunner took command of its Atlantic Division. On 24 Jun 1948, the Soviet Union

blockaded the surface routes between Berlin and the Western zones of occupation in Germany. Allied leaders ordered an airlift to supply Berlin on 26 Jun. On 28 Jul, Tunner took command of the airlift, Operation Vittles. Tunner developed an intricate bridge of aircraft that flowed in and out of Berlin through narrow corridors in a steady stream. The Soviet Union lifted the blockade on 12 May 1949. Operation Vittles delivered 2.3 million tons of cargo to Berlin. Under Tunner, the Berlin Airlift emerged as an enterprise of epic proportions that demonstrated the peaceful use of airpower as a political instrument.

When the Korean War broke out in June 1950, Gen Tunner took command of Combat Cargo Command (Provisional). Tunner showed how one fleet of cargo aircraft was sufficiently flexible to handle airborne assault, airdropped resupply, and airland movement of cargo and personnel in a combat theater. In the mid-1950s, Tunner commanded the US Air Forces in Europe.

In 1958, he took command of the Military Air Transport Service, where he was noted for his advocacy of large, jet-powered military transports to support the Air Force's global mission. Gen Tunner retired in May 1960; he died 6 Apr 1983.

Gen Charles P. Cabell

Gen Cabell was a pioneer in the field of air intelligence. He was born in Dallas, TX, in 1903. He graduated from the US Military Academy 12 Jun 1925, and was commissioned in the Field Artillery. After serving there for five years, he was then assigned to the Air Corps Primary Flying School at Brooks Field TX from which he graduated in February 1931. Next, he completed the observation course at Kelly Field TX and remained there as a flying instructor.

Lt Cabell joined the 7th Observation Squadron at France Field, Panama Canal Zone, as adjutant in October 1931. He subsequently served as commanding officer of the 44th Observation Squadron, the 24th Pursuit Squadron, and the 74th Pursuit Squadron, successively, at Albrook Field.

In September 1938 he entered the Air Corps Tactical School at Maxwell Field AL from which he graduated in June 1939. The following June, Maj Cabell was assigned to the Photographic Laboratory at Wright Field OH. After a period as an observer with the Royal Air Force in the United Kingdom, he was transferred to Washington DC, in April 1941 for duty in the Office of the Chief of Air Corps, as chief of the Photo Unit. In February 1942, Lt Colonel Cabell was made assistant executive for technical planning and coordination. The following

month, he became chief of the advisory council to the commanding general of the Army Air Forces.

From June to October 1943, Cabell attended the first course at the Army and Navy Staff College. He was assigned to the Eighth Air Force in the European Theater in October, and in December, assumed command of the 45th Combat Bombardment Wing. In April 1944, Brig Gen Cabell became director of plans for the US Strategic Air Force in Europe, and 3 months later was made director of operations and intelligence for the Mediterranean Allied Air Forces with headquarters at Caserta, Italy.

Gen Cabell was assigned to Air Force headquarters where he became chief of the Strategy and Policy Division in the Office of the Assistant Chief of Air Staff for Plans. In December, he was assigned with the Military Staff Committee of the United Nations. He became chief of Air Intelligence Requirements Division in the office of the Director of Intelligence in Nov 1947. On 15 May 1948, he was appointed Director of Intelligence, US Air Force. On 1 Nov 1951 he was named director of the Joint Staff. He became deputy director of Central Intelligence on 23 Apr 1953. Gen Cabell retired 31 Jan 1962; he died 25 May 1971.

Gen Bernard A. Schriever

Born in Germany on 14 Sep 1910, Bernard A. Schriever is recognized as the architect of the Air Force's ballistic missile and military space programs. He came to America in 1917 and was naturalized in 1923. Raised in San Antonio, TX, he graduated from Texas A&M in 1931 with a BS degree in engineering. He was commissioned in the Field Artillery, but in July 1932 began flight training at Randolph Field and earned his wings and commission in the Air Corps in June 1933 at Kelly Field. He was assigned as a bomber pilot at March and Hamilton Fields, CA.

He participated in the ill-fated Army airmail fiasco during the winter of 1934. He went to Panama for duty at Albrook Field and in September 1937 left the Air Corps to fly as a commercial pilot. Schriever returned to active duty in October 1938 with the 7th Bomb Group at Hamilton and a year later became a test pilot at Wright Field, where he also attended the Air Corps Engineering School, graduating in July 1941. He then earned an MS degree in aeronautical engineering at Stanford University.

Schriever distinguished himself during World War II flying combat missions in the Pacific theater. He took part in the Bismarck Archipelago, Leyte, Luzon, Papua, North Solomon, South Philippine and Ryukyu campaigns. After the war, Schriever, now a colonel, went to Headquarters Army Air Forces as chief of scientific liaison in the Materiel directorate. In June 1950, he graduated from the National

War College and returned to the Pentagon. In June 1953 he was promoted to brigadier general. Schriever began his long association with Air Research and Development Command, later Systems Command, in June 1954 as assistant to the commander. Then, he was appointed to head the Western Development Division to organize and form what later became the Air Force's ballistic missiles and space divisions that produced the Atlas, Titan, Thor, and Minuteman. He also produced the launchers and space systems that supported National Aeronautics and Space Administration (NASA) and other government agencies.

In Apr 1959, Schriever was named to head Air Research and Development Command. Two years later, he was promoted to four-star rank head of the new Air Force Systems Command (AFSC).

He brought his systems approach to AFSC and applied it to major aeronautics and space programs. Schriever established 437L, an anti-satellite system as part of his efforts to extend the Air Force's mission into space. He personally headed the Manned Orbiting Laboratory Project. He retired in August 1966. He is the only living person to have an Air Force base, formerly Falcon AFB, CO named for him.

Col Jacqueline "Jackie" Cochran

Jacqueline "Jackie" Cochran was born in 1910 in Pensacola, FL. She was the first female pilot to break the sound barrier, 18 May 1953.

After taking flying lessons at Roosevelt Field on Long Island in 1932, she obtained her license in two and a half weeks, bought a plane, and began taking additional flying lessons from Ted Marshall, a Navy pilot.

In 1934, after obtaining a commercial pilot's license, she entered the MacRobertson Race from London to Melbourne, Australia. Although she didn't win the 12,000 mile race, she won the first leg.

In 1935, she founded a cosmetic company and used the business to help finance the races she entered. Next, she entered the Bendy, a cross-country race from Los Angeles to Cleveland. No woman had ever competed in this prestigious race. Cochran and Amelia Earhart were denied their initial applications to compete because of their gender. But they protested and were allowed to compete. Cochran's plane had mechanical problems, but Earhart came in fifth. Cochran later won first place in the women's division of the Bendix and third place overall in 1937 and first place in 1938. In 1938, Cochran flew from New York to Miami in a record-breaking 4 hours and 12 minutes. In 1939, she set a new altitude and international speed record and became the first woman to make a blind landing. In

1940, she broke the 2,000 kilometer international speed record. She received the Clifford Burke Harmon Trophy as the outstanding woman flier in the world in 1938, 1939, and 1940.

During World War II, she organized 25 women to fly for Great Britain and became the first woman to fly a bomber across the Atlantic. She received the Distinguished Service Medal for her services during the War.

In 1943, she was appointed to the staff of the US Army Air Forces and director of the Women's Air force Service Pilots (WASP). She also set nine international speed, distance, and altitude jet records.

In 1971, she was inducted into the National Aviation Hall of Fame, "for outstanding contributions to aviation by her devotion to the advancement of the role of women in all of its aspects, and by establishing new performance records that advanced aeronautics." In 1975, she became the first woman to be honored at the US Air Force Academy with a permanent display of her memorabilia. "Jackie" Cochran died on 7 Aug 1980.

Gen Benjamin Oliver Davis, Jr.

Gen Davis was the commander of the famed World War II "Tuskegee Airmen." At the time of his retirement in 1970, Benjamin O. Davis, Jr., was the senior black officer in the armed forces. He was born in Washington, DC, on 18 Dec 1912, the son of Benjamin O. Davis, Sr., the first black general in the US Army.

After attending Case Western Reserve University and the University of Chicago, Benjamin Davis, Jr., graduated from West Point in 1936. Commissioned an infantry officer, Davis was an ROTC instructor at Tuskegee Institute from 1938 to 1941, when he became one of the first blacks admitted to pilot training.

Davis advanced rapidly in rank, making first lieutenant in June 1939, captain in September 1940, and major and lieutenant colonel in the same month, May 1942. In early 1942, soon after the US entered the war, Davis organized the 19th Fighter Squadron, an all black unit that saw action over North Africa, Sicily, and Italy. The following year, he organized the 332d Fighter Group, which flew in Italy, Germany, and the Balkans. In May 1944, Davis became a colonel.

After World War II, he commanded Dogman Field KY, from 1945 to 1946, and the 332d Fighter Wing at Lockbourne Field OH. After graduating from the Air

War College in 1950, he was named Chief, Fighter Development Branch, Headquarters USAF.

Davis went to the Far East in 1953 to command the 51st Fighter Interceptor Wing in Korea. He pinned on his first star in October 1954. Next he became Director of Operations at Headquarters, Far East Air Forces, in Tokyo.

Gen Davis went to Ramstein, Germany, in 1957 as Chief of Staff, Twelfth Air Force. In June 1959, he became the first black officer in any service to hold two-star rank. From 1959 to 1961, he was Deputy Chief for Operations, USAFE. In 1961, Davis became Director of Manpower and Organization at Headquarters USAF, where he served until 1965. He then pinned on his third star and became Chief of Staff for US Forces and the United Nations Command in Korea. From 1968 until his retirement in 1970, Gen Davis was Deputy Commander, US Strike Command, at McDill AFB, FL.

Benjamin Davis was active after military retirement. In 1970, he organized a special force of "sky marshals" to help combat aircraft hijacking. In July 1971, he was appointed Assistant Secretary of Transportation. He held that position until he retired in 1975. In a White House ceremony on 8 Dec 1998, President Clinton promoted him to the rank of general. The general died on 4 Jul 2002.

Gen Daniel "Chappie" James, Jr.

Gen James distinguished himself as a combat leader in three wars, World War II, Korea, and Vietnam. Gen Daniel "Chappie" James, Jr., was born in Pensacola, FL, in 1920. After graduating from high school in the spring of 1937, James continued his studies at Tuskegee Institute, AL. Then, with war on the horizon, James enrolled in the government's Civilian Pilot Training Program, which was opened for the first time to African Americans. From the beginning of World War II until 1943, James served as a civilian flight instructor at Tuskegee Army Airfield. In July 1943, he was commissioned as a second lieutenant upon the successful completion of his flight training. James became one of the famed Tuskegee Airmen.

James completed fighter pilot training in Selfridge Field MI. Thereafter, he was assigned to various army air bases in the US to the war's end and did not see combat in World War II. In September 1949, James became a flight commander of the 12th Fighter Bomber Squadron, 18th Fighter Wing, at Clark Field in the Philippines.

In the skies over Korea, James experienced his first combat, while piloting F-51 and F-80 aircraft. In all, he flew more than 100 combat missions. In mid-1951, James was reassigned to the US, where he continued flying as a jet fighter pilot while flight operations officer in the 58th Fighter Interceptor Squadron. In April 1953, he assumed

command of the 60th Fighter-Interceptor Squadron.

James's career continued to rise when he was assigned to Air Force headquarters as a staff officer, Air Defense Division, Office of the Deputy Chief of Staff (DCS) for Operations. In July 1960, James went to Great Britain, where he held numerous leadership positions in 81st Tactical Fighter Wing (TFW), among them commanding the 92d Tactical Fighter Squadron, Royal Air Force Bentwaters, England. He later became the deputy commander for operations of the 81st TFW.

James next saw combat during the Vietnam War. In June 1967, he became the vice commander of the 8th TFW under commander Colonel Robin Olds. He flew 80 combat missions over North Vietnam. In the summer of 1969, James became the commander of a fighter wing at Wheelus, Libya.

In September 1974, he served as the vice commander at Headquarters Military Airlift Command. He was promoted to four-star general on 1 Sep 1975 as he took command of the North American Air Defense Command (NORAD) and US Air Defense Command (ADCOM). James then served as special assistant to the Chief of Staff of the Air Force in December 1977.

After a long and distinguished career, he retired 1 Feb 1978 and died 25 Feb 1978.

Airman First Class John Lee Levitow

Airman First Class John Lee Levitow, an AC-47 gunship loadmaster, became the lowest ranking Airman ever to receive the Medal of Honor for exceptional heroism during wartime. Born in Hartford, CT, Levitow attended Glastonbury High School. First, he was trained in the civil engineering career field, and later cross-trained into the loadmaster career field. After flying with C-130s out of McGuire Air Force Base, NJ, he was sent to Vietnam.

On 24 Feb 1969, A1C Levitow was handling Mark 24 magnesium flares aboard "Spooky 71" when his pilot threw the AC-47 and its eight-man crew into a turn to engage Viet Cong whose muzzle flashes were visible outside Long Binh Army Base. The aircraft, an armed version of the C-47 Skytrain transport, had been flying a night mission in the Tan Son Nhut Air Base area when Long Binh came under attack

Suddenly, Spooky 71 was jarred by a tremendous explosion and bathed in a blinding flash of light. A North Vietnamese Army 82-millimeter mortar shell had landed on top of the right wing and exploded inside the wing frame. The blast raked the fuselage with flying shrapnel. Everyone in the back of Spooky 71 was wounded. Despite his wounds, Levitow came to the rescue of a fellow crewmember who was perilously close to the open cargo door. As he dragged his buddy back toward the center of the cabin, Levitow saw something even worse: a loose, burning 27 pound magnesium flare had been knocked free in the fuselage and

was rolling amid ammunition cans that contained 19,000 rounds of live ammunition.

Through a haze of pain and shock, Levitow, with 40 shrapnel wounds in his legs, side and back, realized he was the closest crewmember to the flare. Fighting a 30–degree bank, Levitow crawled to the flare, but was unable to grasp it to pick it up. He threw himself bodily upon the burning flare. Hugging it to his body, he dragged himself back to the rear of the aircraft, leaving a trail of blood behind. Not knowing how long the flare had been burning, he hurled it through the open cargo door. At that instant, the flare separated and ignited in the air, but clear of the aircraft. When the aircraft finally returned to the base, the extent of the damage became apparent. The AC-47 had more than 3,500 holes in the wings and fuselage, one measuring more than 3 feet long. Levitow spent about two-and-a-half months in a hospital and upon his recovery was sent back to Vietnam for another tour of duty. He was returned to the United States to receive the Medal of Honor from President Nixon in ceremonies at the White House on Armed Forces Day, May 14, 1970.

He was promoted to sergeant before his discharge from the Air Force fours years later. On 22 Jan 1998, in Long Beach, CA, Air Mobility Command struck a resounding chord for the Air Force enlisted by naming of a C-17 Globemaster II, "The Spirit of John Levitow."

Levitow worked for the state of Connecticut designing veterans programs until his death on 8 Nov 2000 after a lengthy battle with cancer. He was buried 17 Nov 2000 at Arlington National Cemetery with military honors.

In his memory, the Levitow Honor Graduate Award is presented to the top professional military education graduate from Air Force Airman Leadership Schools. The 737th Training Group headquarters building at Lackland AFB, TX, has been named in his honor.

Staff Sergeant William H. Pitsenbarger

On 11 Apr 1966, a 21-year-old known as "Pits" to his friends was killed while defending wounded comrades in arms. For his bravery and sacrifice, pararescueman, Staff Sergeant William H. Pisenbargar was posthumously awarded the nation's highest military decorations, the Medal of Honor and the Air Force Cross, becoming the first enlisted Airman to receive both medals posthumously.

Pitsenbarger was born in 1945 and grew up in Piqua, OH, a small town near Dayton, OH. After he graduated from high school, he joined the Air Force on New Year's Eve 1962. After completing pararescue training in 1965, he received orders to report to Detachment 6, 38th Air Rescue and Recovery Squadron at Bien Hoa Air Base near Saigon, Republic of South Vietnam. His unit, composed of five aircrews, flew three HH-43F Kaman "Huskie" helicopters. His commander, Maj. Maurice Kessler, once referred to Pitsenbarger as "One of a special breed. Alert and always ready to go on any mission." Pitsenbarger flew almost 300 rescue missions while in Vietnam, routinely risking his life rescuing downed soldiers and Airmen.

On 11 Apr 1966, Airman Pitsenbarger was aboard a rescue helicopter responding to a call for evacuation of casualties incurred in an ongoing firefight between elements of the United States Army's 1st Infantry Division and a sizeable enemy force approximately 35 miles east of Saigon. Upon reaching the site of the ambush, and with complete disregard for his own safety, he descended from the helicopter. On the

ground, he organized and coordinated rescue efforts, cared for the wounded, prepared casualties for evacuation, and insured that the recovery operation continued in a smooth and orderly fashion—several times refusing evacuation himself.

After some of the wounded men had been flown to an aid station, the two Air Force helicopters returned for second loads. At that point, one of the rescue helicopters was hit by a burst of enemy small arms fire as it lowered a litter basket to Pitsenbarger. When its engine began to lose power, the pilot realized he had to get the helicopter away from the area as soon as possible. Instead of climbing into the litter basket so he could leave with the helicopter, Pitsenbarger chose to remain with the Army troops under enemy attack and gave a "wave-off" to the helicopter, which flew away to safety. With heavy mortar and small-arms fire, the helicopters couldn't return to rescue the rescuer.

As the battle raged on, he repeatedly exposed himself to enemy fire to care for the wounded, pull them out of the line of fire, and return fire whenever he could, during which time he was wounded three times. When the others began running low on ammunition, he gathered ammo clips from the dead and distributed them to those still alive. Then, he joined the others with a rifle to hold off the Viet Cong. Pitsenbarger was killed by Viet Cong snipers later that night. When his body was recovered the next day, one hand still held a rifle and the other clutched a medical kit.

Although Pitsenbarger didn't escape alive, nine other men did, thanks to his courage and devotion to duty. On 8 Dec 2000, the Airman's father, William F. Pitsenbarger, and his wife, Alice, accepted the Medal of Honor from Secretary of the Air Force Whit Peters. The audience included battle survivors, hundreds of pararescue airmen, a congressional representative and the Air Force Chief of Staff. He was also posthumously promoted to staff sergeant. The US Navy also named an Air Force munitions preposition ship the MV A1C William H. Pitsenbarger.

Col Eileen M. Collins

Col Collins is the first female to command a space shuttle mission. An officer in the Air Force and astronaut with NASA, Col Eileen M. Collins was born in November 1956, in Elmira, NY. She earned a BA in mathematics and economics at Syracuse University in 1978; an MS in operations research from Stanford University in 1986; and an MA in space systems management from Webster University in 1989. Collins graduated from Air Force Undergraduate Pilot Training at Vance AFB OK in 1979. Subsequently, she served as a T-38 instructor pilot at Vance, and in 1983 became a C-141 aircraft commander and instructor pilot at Travis AFB, CA. From 1986 to 1989, she was an assistant professor in mathematics and a T-41 instructor pilot at the US Air Force Academy. Col Collins has logged over 5,000 hours in 30 different types of aircraft.

In January 1990, NASA selected Colonel Collins for the astronaut program while she was attending the Air Force Test Pilot School at Edwards AFB, CA. She became an astronaut in July 1991. Initially, NASA assigned Col Collins to orbiter engineering support. Subsequently, she also served on the astronaut support team responsible for orbiter prelaunch checkout, final launch configuration, crew ingress/egress, and landing/ recovery. She also worked in Mission Control

as a spacecraft communicator. In addition to these duties, Col Collins also served as the Astronaut Office Spacecraft Systems Branch Chief, Chief Information Officer, Shuttle Branch Chief, and Astronaut Safety Branch Chief.

A veteran of three space flights, Collins has logged over 537 hours in space. STS-63 was the first flight of the new joint Russian-American Space Program. Mission highlights included the rendezvous with the Russian Space Station Mir, the deployment and retrieval of an astronomy satellite, and a space walk. On this mission, Col Collins became the first female pilot of a space shuttle.

She flew on STS-84 aboard the Atlantis from 15 to 24 May 1997, NASA's sixth Shuttle mission to rendezvous and dock with the Russian Space Station Mir. During this flight, the crew transferred nearly four tons of supplies and experimental equipment.

During STS-93, flown by the shuttle Columbia, 22-27 Jul 1999, she became the first woman to command a shuttle mission. This mission featured deployment of the Chandra X-Ray Observatory. Col Collins remains with NASA and is assigned to command STS-114, planned for launch in 2005.

Senior Airman Jason D. Cunningham

Born on 27 Mar 1975, Senior Airman Jason D. Cunningham was awarded the Air Force Cross for extraordinary heroism in military operations.The President of the United States of America, awarded the Air Force Cross to Senior Airman Cunningham for operations against an opposing armed force while serving as a pararescueman near the village of Marzak in the Paktia Province of Afghanistan on 4 Mar 2002.

On that proud day, Airman Cunningham was the primary Air Force Combat Search and Rescue medic assigned to a Quick Reaction Force tasked to recover two American servicemen evading capture in austere terrain occupied by massed Al Qaida and Taliban forces.

Shortly before landing, his MH-47E helicopter received accurate rocket-propelled grenade and small arms fire, severely disabling the aircraft and causing it to crash land. The assault force formed a hasty defense and immediately suffered three fatalities and five critical casualties.

Despite effective enemy fire, and at great risk to his own life, Airman Cunningham remained in the burning fuselage of the aircraft in order to treat the wounded. As he moved his patients to a more secure location, mortar rounds began to impact within fifty feet of his position.

Disregarding this extreme danger, he continued the movement and exposed himself to enemy fire on seven separate occasions.

When the second casualty collection point was also compromised, Airman Cunningham braved an intense small arms and rocket-propelled grenade attack while repositioning the critically wounded to a third collection point. Even after he was mortally wounded and his condition quickly deteriorating, he continued to direct patient movement and transferred care to another medic. In the end, his distinct efforts led to the successful delivery of ten gravely wounded Americans to life-saving medical treatment.

Medal of Honor Recipients

Bleckley, 2d Lt
Erwin R.
Wichita, KS
6 Oct 1918

Goetller, 1st Lt
Harold E.
Chicago, IL
6 Oct 1918

Luke, 2d Lt
Frank Jr.
Phoenix, AZ
29 Sep 1918

Rickenbacker, 1st Lt
Edward V.
Columbus, OH
25 Sep 1918

Baker, Lt Col
Addison E.
Chicago, IL
1 Aug 1943

Bong, Maj
Richard I.
Poplar, WI
10 Oct - 15 Nov
1944

Carswell, Maj
Horace S. Jr.
Fort Worth, TX
26 Oct 1944

Castle, Brig Gen
Frederick W.
Manila,
Philippines
24 Dec 1944

Cheli, Maj Ralph
San Francisco, CA
18 Aug 1943

Craw, Col
Demas T.
Traverse City, MI
8 Nov 1942

Doolittle, Lt Col
James H.
Alameda, CA
18 Apr 1942

Erwin, SSgt
Henry E.
Adamsville, AL
12 Apr 1945

Femoyer, 2d Lt
Robert E.
Huntington, WV
2 Nov 1944

Gott, 1st Lt
Donald J.
Arnett, OK
9 Nov 1944

Hamilton, Maj
Pierpont M.
Tuxedo Park, NY
8 Nov 1942

Howard, Lt Col
James H.
Canton, China
11 Jan 1944

Hughes, 2d Lt
Lloyd H.
Alexandria, LA
1 Aug 1943

Jerstad, Maj
John L.
Racine, WI
1 Aug 1943

Johnson, Col
Leon W.
Columbia, MO
1 Aug 1943

Kane, Col.
John R.
McGregor, TX
1 Aug 1943

Kearby, Col Neel E.
Wichita Falls, TX
11 Oct 1943

Kingsley, 2d Lt
David R.
Portland, OR
23 Jun 1944

Knight, 1st Lt
Raymond L.
Houston, TX
25 Apr 1945

Lawley, 1st Lt
William R. Jr.
Leeds, AL
20 Feb 1944

Lindsey, Capt
Darrell R.
Jefferson, IA
9 Aug 1944

Mathies, Sgt
Archibald
Scotland
20 Feb 1944

Mathis, 1st Lt.
Jack W.
San Angelo, TX
18 Mar 1943

McGuire. Maj
Thomas B. Jr.
Ridgewood, NJ
25-26 Dec 1944

Metzger, 2d Lt
William E. Jr.
Lima, OH
9 Nov 1944

Michael, 1st Lt
Edward S.
Chicago, IL
11 Apr 1944

Morgan, 2d Lt
John C.
Vernon, TX
28 Jul 1943

Pease, Capt
Harl Jr.
Plymouth, NH
7 Aug 1942

Pucket, 1st Lt
Donald D.
Longmont, CO
9 Jul 1944

Sarnoski, 2d Lt
Joseph R.
Simpson, PA
16 Jun 1943

Shomo, Maj
William A.
Jeannette, PA
11 Jan 1945

Smith, Sgt
Maynard H.
Garo, MI
1 May 1943

Truemper, 2d Lt
Walter E.
Aurora, IL
20 Feb 1944

Vance, Lt Col
Leon R. Jr.
Enid, OK
5 Jun 1944

Vosler, TSgt
Forrest L.
Lyndonville, NY
20 Dec 1943

Walker, Brig
Gen Kenneth N.
Cerritos, NM
5 Jan 1943

Wilkins, Maj
Raymond H.
Portsmouth, Va.
2 Nov 1943

Zeamer, Maj
Jay Jr.
Carlisle, PA
16 Jun 1943

Davis, Maj
George A. Jr.
Dublin, TX
10 Feb 1952

Loring, Maj
Charles J. Jr.
Portland, ME
22 Nov 1952

Sebille, Maj
Louis J.
Harbor Beach, MI
5 Aug 1950

Walmsley, Capt
John S. Jr.
Baltimore, MD
14 Sep 1951

Bennett, Capt
Steven L.
Palestine, TX
29 Jun 1972

Day, Maj George E.
Sioux City, IA
Conspicuous gallantry
while POW
26 Aug 1967

Dethlefsen, Maj
Merlyn H.
Greenville, IA
10 Mar 1967

Fisher, Maj
Bernard F.
San Bernardino, CA
10 Mar 1966

Fleming, 1st Lt
James P.
Sedalia, MO
26 Nov 1968

Jackson Lt Col
Joe M.
Newman, GA
12 May 1968

Jones, Col.
William A. III
Warsaw, VA
1 Sep 1968

Levitow, A1C
John L.
South Windsor, CT
24 Feb 1969

Pitsenbarger,
A1C William H
Piqua, OH
11 Apr 1966

Sijan, Capt Lance P.
Milwaukee, WI
Conspicuous gallantry
while POW
9 Nov 1967

Thorsness, Maj
Leo K.
Walnut Grove, MN
19 Apr 1967

Wilbanks, Capt
Hilliard A.
Cornelia, GA
24 Feb 1967

Young, Capt
Gerald O.
Chicago, IL
9 Nov 1967

Special Medal of Honor Recipients

Col Charles A.
Lindbergh
4 Feb 1902
Detroit, MI
...for
displaying
heroic
courage and
skill as pilot
and navigator
of the first
nonstop,
transatlantic
flight...
Special Gold
4 May 1928

Col W.C.
"Billy"
Mitchell
29 Dec 1879
Nice, France
...for
outstanding
pioneer
service and
foresight in
the field of
American
military
aviation...
Special Gold
8 Aug 1946
Posthumus Award

Lt Gen Ira C.
Eaker
13 Apr 1896
Field Creek, TX
...for
contributing
immeasurably
to the
development
of aviation
and to the
security of his
country...

Special Gold
10 Oct 1978

Brig Gen
Charles
Elwood Yeager
13 Feb 1923
Myra, WV
...for conspicuous
gallantry and
total disregard
for his personal
safety as pilot of
the first faster-
than-sound
flight.
Broke sound
barrier
14 Oct 1947...
Special Silver
23 Dec 1975

Air Force Top 10 Aces

World War I Aces

Name	Rank	Victories
Rickenbacker, Edward V.,	Capt	26
Luke, Frank, Jr.,	2d Lt	18
Vaughn, George A.	1st Lt	13
Kindley, Field E.,	1st Lt	12
Springs, Elliott W.	1st Lt	12
Landis, Reed G.	1st Lt	10
Swaab, Jacques M.	1st Lt	10
Baer, Paul P. 1st Lt	9	
Cassady, Thomas G.	1st Lt	9
Hamilton, Lloyd A.	1st Lt	9

World War II Aces

Bong, Richard I.	Maj	40
McGuire, Thomas B., Jr,	Maj	38
Gabreski, Francis S.	Lt Col	28
Johnson, Robert S.	Capt	27
MacDonald, Charles H.	Col	27
Preddy, George E.	Maj	26.83
Meyer, John C.	Lt Col	24
Schilling, David C.	Col	22.5
Johnson, Gerald R.	Lt Col	22
Kearby, Neel E.	Col	22

Korean War Aces

McConnell, Joseph C., Jr. Capt	16	
Jabara, James	Maj	15
Fernandez, Manuel J.	Capt	14.50
Davis, George A., Jr.	Maj	14
Baker, Royal N.	Col	13
Blesse, Frederick C.	Maj	10
Fischer, Harold E.	1st Lt	10
Garrison, Vermont	Lt Col	10
Johnson, James K.	Col	10
Moore, Lonnie R.	Capt	10

Vietnam War Aces

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

The Enlisted Force

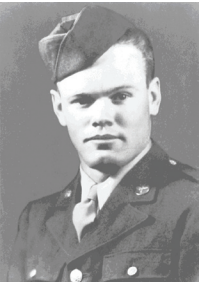
The enlisted member of the Total Force represent the backbone of the Air Force. The Senior NCOs, NCOs and Airmen that comprise the enlisted force have made and continue to make invaluable contributions to the success of America's Air Force. Their stories that follow illustrate the dedication, courage, and valor with which the enlisted forces serves each and everyday and inspire all Airmen.

Staff Sergeant Archibald Mathies

The final Medal of Honor earned by a US Army Air Force (USAAF) enlisted man in the European Theater was awarded posthumously to Scotland native Staff Sergeant "Archie" Mathies of the 351st Bomber Group. Serving as engineer and ball turret gunner, on 20 Feb 1944, Mathies' aircraft was severely damaged in a frontal attack by enemy fighters over Leipzig, Germany. The attack killed the copilot and wounded the pilot, rendering him unconscious. Sergeant Carl Moore, the plane's top turret gunner, managed to pull the aircraft from its spin, and he and Mathies managed to fly the aircraft back to England. Surviving crewmembers were ordered to bailout. All but Mathies and the navigator, Lieutenant Walter Truemper, complied. Demonstrating unsurpassed courage and heroism, the pair refused to abandon their unconscious crewmate—the pilot. On the third attempt to land, the aircraft crashed, killing all aboard.

Staff Sergeant Henry E. Erwin

On 12 Apr 1945, Staff Sergeant "Red" Erwin of the 29th Bombardment Group earned the USAAF enlisted corps' final Medal of Honor in the Pacific Theater for action during World War II. The 23-year old Adamsville, AL, native served as a radio operator aboard a B-29 attacking a chemical plant at Koriyama, Japan. As the aircraft began its bomb run and encountered enemy fighter opposition, the phosphorescent flare Erwin prepared to release ignited prematurely and began to burn through the floor of the aircraft. Already blinded and badly injured by the flare, he cradled the 1300-degree Fahrenheit flare and hurled it through the copilot's window. Badly burned and not expected to survive, Erwin received the Medal of Honor from General Curtis LeMay just over a week after the Koriyama mission. However, Erwin did survive the incident, as well as dozens of subsequent operations.



CMSgt Wayne L. Fisk

CMSgt Fisk served four tours of duty in SEA as a pararescueman (PJ) and is widely recognized as the last American serviceman to engage Communist forces in ground combat in Southeast Asia, during the USS Mayaguez rescue operation—earning his second Silver Star. In May 1975, Fisk was a member of the assault force that successfully recovered the merchant ship Mayaguez seized by Cambodian forces, its crew, and the entrapped United States Marines from the island of Koh Tang. CMSgt Fisk earned his first Silver Star earlier as a participant in the attempted rescue of POWs—thought

to be held at the Son Tay prison camp. He was also a member of the USAF primary recovery team for Apollo space missions VIII, IX, and X.

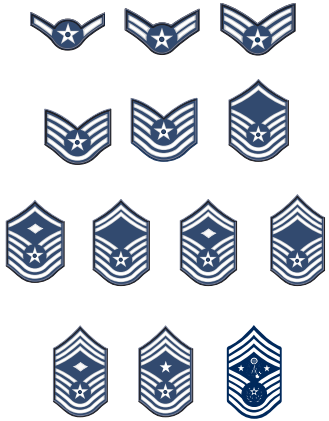
CMSgt Richard L. Etchberger

CMSgt Etchberger was serving in Laos when Peoples Army of Vietnam forces overran his radar site 11 Mar 1968. Under heavy fire, he continued to defend his comrades, call in air strikes, and direct an air evacuation. When a rescue helicopter arrived, the chief put himself in the line of fire while placing three other Airmen in rescue slings. He was fatally wounded by enemy ground fire as he was finally being rescued. His fierce defense culminated in the supreme sacrifice of his life, saved not only the lives of his three comrades but provided for the successful evacuation of the remaining survivors of the base. For extradordinary heroism, superb leadership, and aggressiveness CMSgt Etchberger was posthumously awarded the Air Force Cross.

TSgt Timothy A. Wilkinson

TSgt Wilkinson was awarded the Air Force Cross for extraordinary heroism in military operations against an opposing armed force as a 24th Special Tactics Squadron Pararescueman in the vicinity of the Olympic Hotel, Mogadishu, Somalia, from 03 – 04 Oct 1993. When US UH-60 helicopter had been shot down by a rocket propelled grenade (RPG), TSgt Wilkinson conducted a fast rope insertion into the crash site and came under extremely heavy enemy fire from 3 directions. He

repeatedly exposed himself to intense small arms fire and grenades to clear debris, provide emergency medical treatment to survivors, and extract dead and wounded members of the downed helicopter. On his own initiative, he broke cover on 3 separate occasions while under intense fire to locate and provide medical treatment to 3 US Army Ranger casualties. TSgt Wilkinson's medical skills and uncommon valor saved the lives of multiple gravely wounded American soldiers in the longest sustained fire fight (18 hours) involving United States combat forces in over 20 years.



Chief of Staff's Reading List

The Chief of Staff provides a list of recommended reading that promotes a broad understanding of where we've been as an Air Force, the challenges and demands we face today, and a clear vision to the future.

The reading list is a dynamic list to remain relevant to changing times and situations. Their selection does not imply the Chief of Staff's or the US Air Force's endorsement of the authors' views or interpretations.

These books are made available to you through our institutional schools at Air University, each Air Force library, bookstores, and through on-line services. The most recent reading list can be accessed at:

www.af.mil/library/csafreading/

Each Airman should develop strong reading habits to further their intellectual development. One of the best ways we each can serve our nation is to continue our growth toward increased responsibility and the leadership challenges that come with it. We owe it to ourselves to continue our professional development to continue to hone our quality edge.

Quotations

CHARACTER

"Duty then is the sublimest word in the English language. You should do your duty in all things. You can never do more. You should never wish to do less."

General Robert E. Lee

"The discipline which makes the soldiers of a free country reliable in battle is not to be gained by harsh or tyrannical treatment. On the contrary, such treatment is far more likely to destroy than to make an army. It is possible to impart instruction and to give commands in such a manner and such a tone of voice as to inspire in the soldier no feeling but an intense desire to obey, while the opposite manner and tone of voice cannot fail to excite strong resentment and a desire to disobey. The one mode or the other of dealing with subordinates springs from a corresponding spirit in the breast of the commander. He who feels the respect which is due to others cannot fail to inspire in them respect for himself, while he who feels and hence manifests, disrespect toward others, especially his subordinates, cannot fail to inspire hatred against himself."

Maj Gen John M. Schofield,
to the graduating class of 1879 at West Point

"Character is much easier kept than recovered."

Thomas Paine, 1783

"The foundation of leadership is character."

General Alexander M. Patch

"Boldness governed by superior intellect is the mark of a hero."

Karl Von Clausewitz, On War

"The most important thing I learned is that soldiers watch what their leaders do. You give them classes and lecture them forever, but it is your personal example they will follow."

General Colin J. Powell, Chairman, JCS

"Of all manifestations of power, restraint impresses men most."

Greek Historian Thucydides

"Discipline is that trait of character which renders punishment unnecessary."

Anonymous

HONOR

"Nobody can acquire honor by doing what is wrong."

President Thomas Jefferson

"You may have to fight when there is no hope of victory, because it is better to perish than live as slaves."

Winston Churchill, after the Battle of Britain

"If I lose mine honor, I lose myself."

William Shakespeare,
1607 Anthony & Cleopatra

PERSONAL INTEGRITY

"He who permits himself to tell a lie once finds it much easier to do it a second and third time, till at length it becomes habitual; he tells a lie without attending to it, and truths without the world believing it."

President Thomas Jefferson

"Integrity is the fundamental premise for military service in a free society. Without integrity, the moral pillars of our military strength, public trust, and self-respect are lost."

General Charles A. Gabriel,
Chief of Staff, USAF

"A [person] has integrity if his interest in the good of the service is at all times greater than his personal pride, and when he holds himself to the same line of duty when unobserved as he would follow if his superiors were present."

General S.L.A. Marshall

PATRIOTISM

"Duty, honor, country: Those three hallowed words reverently dictate what you ought to be, what you can be, what you will be. They are your rallying point to build courage when courage seems to fail, to regain faith when there seems to be little cause for faith, to create hope when hope becomes forlorn."

General of the Army Douglas MacArthur

"What you have chosen to do for your country by devoting your life to the service of your country is the greatest contribution that any[one] can make."

President John F. Kennedy

"An officer's ultimate commanding loyalty at all times is to his country, and to his service or to his superiors."

General of the Army George C. Marshall


DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

Air Force Senior Leadership

President of the United States of America

George W. Bush

Secretary of Defense

Honorable Donald Rumsfeld

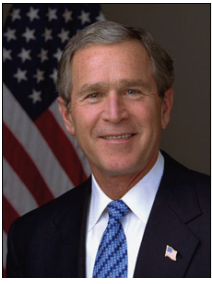
Secretary of the Air Force

Michael W. Wynne

Air Force Chief of Staff

General T. Michael Moseley


SEAL OF THE PRESIDENT OF THE UNITED STATES



George W. Bush is the 43rd President of the United States. He was sworn into office January 20, 2001. He is Commander-In-Chief of U. S. Armed Forces.

President Bush was born on July 6, 1946, in New Haven, CT. The son of President George Herbert Walker Bush, George W. Bush grew up in Midland and Houston, TX. He received a bachelor's degree from Yale University in 1968, then served as an F-102 fighter pilot in the Texas Air National Guard. President Bush received a Master of Business Administration from Harvard Business School in 1975.

President Bush served as the 46th Governor of the State of Texas, from January 17, 1995 to December 21, 2000, resigning as governor in the middle of his second term to become President of the United States.

President Bush is married to Laura Welch Bush, a former teacher and librarian, and they have twin daughters, Barbara and Jenna.

Donald H. Rumsfeld was sworn in as the 21st Secretary of Defense on January 20, 2001. Secretary Rumsfeld is responsible for directing the actions of the Defense Department. Under his leadership, the department has developed a new defense strategy and replaced the old model for sizing forces with a newer approach more relevant to the 21st century. Secretary Rumsfeld proposed, and the President approved, a significant reorganization of the worldwide command structure, known as the Unified Command Plan, that resulted in the establishment of the U. S. Northern Command and the U. S. Strategic Command, the latter charged with the responsibilities formerly held by the Strategic and Space Commands which were disestablished.

Oath of Office

I, (Full Name), having been appointed a (Rank) in the United States Air Force, do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office upon which I am about to enter, SO HELP ME GOD.

Oath of Enlistment

I, (state your full name), do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same, and that I will obey the orders of the President of the United States and the orders of the officers appointed over me according to regulations and the Uniform Code of Military Justice, SO HELP ME GOD.

Civilian Oath

I do solemnly swear (or affirm) that I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office on which I am about to enter: SO HELP ME GOD.


Institutional Values
SERVICE
INTEGRATING OPERATIONS
CHARACTER
HONOR
PERSONAL INTEGRITY
PATRIOTISM

USAF Mission Statement

To Defend the United States
and Protect its Interests
Through Air & Space Power

USAF Vision Statement

Global Vigilance, Reach, and Power

Core Values

Integrity First • Service Before Self
Excellence in All We Do

The Air Force core values are the bedrock foundation of the Air Force. The core values are a statement of those institutional values and principles of conduct that provide the moral framework within which military activities take place. The professional Air Force ethic consists of three fundamental and enduring values of integrity, service, and excellence. This ethic is the set of values that guide the way Air Force members live and perform. Success hinges on the incorporation of these values. In today's time-compressed, dynamic, and dangerous modern battlespace an Airman does not have the luxury of examining each issue at leisure. He or she must fully internalize these values so as to know how to automatically act in all situations—to maintain integrity first, service before self, and to perform with excellence in all we do and encourage it in others.

Core Competencies

To sustain our dominance, the Air Force must develop professional Airmen, invest in warfighting technology, and integrate people and systems together to produce decisive joint warfighting capabilities.

DEVELOPING AIRMEN

At the heart of combat capability are the professional Airmen who voluntarily serve our nation in the Air Force. America's Airmen turn ideas, tools, tactics, techniques, and procedures into global mobility, power projection, and battlespace effects. The Air Force is committed to the ongoing management and development of all Airmen to define, renew, develop, and sustain the Total Force. In the Air Force, the capabilities we derive from diversity are vital to mission excellence and at the core of our strategy to maximize our combat capabilities. In this new era, successful military operations demand much greater agility, adaptability, and versatility to achieve and sustain success. This requires a force comprised of the best our nation has to offer, from every segment of society, trained and ready to go. Our focus is building a force that consists of men and women who possess keener international insight, foreign language proficiency, and wide-ranging

cultural acumen. Diversity of life experiences, education, culture and background are essential to help us achieve the asymmetric advantage we need to defend America's interests wherever threatened. Our strength comes from the collective application of our diverse talents, and is a critical component of the air and space dominance we enjoy today. We must enthusiastically reach out to all segments of society to ensure the Air Force offers a welcoming career to the best and brightest of American society, regardless of their background. By doing so, we attract people from all segments of society and tap into the limitless talents resident in our diverse population. This ensures the Air Force and the nation will always have Airmen fit to fight and ready to win America's wars.

TECHNOLOGY TO WARFIGHTING

The Air Force uses a capabilities-based approach to war planning to focus technology investments on those needed to provide air and space expeditionary capabilities to support the joint warfighter. The Air Force is committed to leveraging America's technological competitive advantage to continually transform the Air Force, thus assuring our dominance in air and space power. The Capabilities Review and Risk Assessment (CRRA) process guides the effort to analyze the span of joint tasks Airmen may be asked to perform and define the effects Airmen need to produce.

INTEGRATING OPERATIONS

The Air Force excels at providing communications, intelligence, air mobility, precision strike, and space capabilities that enable joint operations. Our Airmen apply a capabilities-based approach to war planning to integrate these and other capabilities into a cohesive system that creates war-winning effects. Integration takes place at three levels. At the joint strategic level, integration occurs between US Government agencies and the coalition. Integration also takes place within the Air Force at an organizational level. At its most basic level, integration takes place at the machine-to-machine level to achieve universal information sharing which facilitates true integration at every level.

The Air Force provides integrated capabilities to combatant commanders according the Air Expeditionary Force Presence Policy (AEFPP), the Air Force portion of DoD's Joint Presence Policy. There are ten AEFs, and each AEF provides a portfolio of capabilities and force modules. At any given time, two AEFs are postured to immediately provide these capabilities. The other eight are in various stages of rest, training, spin-up, or standby. The AEF is how the Air Force organizes, trains, equips, and sustains responsive air and space forces to meet defense strategy requirements outlined in the Strategic Planning Guidance.

Our portfolio of advantages provides dividends on the battlefield. We bring to bear a diversified collection of capabilities, which answer the needs of a spectrum of combat and humanitarian operations. As one would with any investment, we will monitor, maintain, and adjust our investments as needed to reflect the demands of a dynamic environment. Transformational initiatives in the way we organize, train and equip reflect such adjustments—changes that will result in significant gains for our force, for the joint team, and for our nation.

The success of the Air Force resides in the trained and ready Airmen who employ the technology of warfighting through integrated operations with our joint and coalition partners. This is our heritage and our future. This is America's Air Force.

The 4 Pillars:

Character • Honor • Personal Integrity • Patriotism

Our Air Force's proud history of accomplishments traces directly to the quality of people who make up the total Air Force team. At every base, wing, and deployed location, our Airmen rise to challenges every day demonstrating their loyalty and dedication. All Airmen are glad you have decided to join this prestigious team.

It is essential that all Airmen understand their responsibilities concerning character, honor, personal integrity and patriotism required of each member of the Air Force team. These concepts provide the basis of our Air Force core values.

Character comprises the emotional, intellectual, and moral qualities that distinguish one group from another—and the judgment to discern them. Character is not merely knowing the right thing to do, but also having the firm conviction and the courage to act upon such knowledge. This conviction requires solid moral fiber and ethical strength to do what is right even if no one will witness your actions. Our actions over time define our character, which in turn defines our lasting reputation. When we make the wrong choices, both our character and our reputation are damaged.

Honor means having a keen sense of ethical and moral conduct. For Airmen, honor encompasses our sense of loyalty and duty — hallmarks of how we serve the nation.

Our oaths of office remind us of our highest loyalty — the constitution and all that it stands for. Our loyalty belongs to the American people, our chain of command, the Air Force, our fellow Airmen and lastly to our self. Anything otherwise is misplaced loyalty, which is unacceptable in our Air Force. Serving with honor means Airmen always do their duty — great and small. Honor means having the moral and sometimes physical courage to do our duty in the face of danger or adverse circumstances, no matter the consequences.

Personal Integrity is the ability to hold together and properly regulate all of the elements of a personality. It is our "moral compass." It is the inner voice, the voice of self-discipline and self-control, the basis for the individual trust imperative for our Air Force, and a foundation for our organizational integrity. Honesty is a trademark of the profession of arms and Airmen everywhere—our word is our bond. We do not lie, nor do we tolerate those who do. No deviation is acceptable. Airmen with integrity are responsible and accountable for their behavior, words, and deeds. Airmen are fair, just, and respectful of themselves and others, never bringing discredit upon themselves, the unit, the Air Force, or the nation.

Patriotism is each Airman's love and devotion to country. Patriotism is why we serve. From our patriotism flows our obligation to be good stewards of our nation's resources —especially the most precious, our people — and to be good citizens. Airmen work with the other services to form a joint team to ensure America and its ideals continue for generations to come. Patriotism inspires us to live up to the standards and ideals of America's Airmen, even under prolonged and difficult circumstances.

The responsibility of enforcing core values does not fall solely to senior leaders and commanders. Every Airman

must embrace and reflect these values, both on and off-duty. Our Air Force is judged by the actions of each and every Airman. Your personal and professional standards will be imitated. We must reflect these fundamental values in our daily conduct and help develop those attitudes in others. If you see a fellow Airman cut corners and don't say anything, you have condoned that action. Failing to correct or report instances when the rules are broken, selectively enforcing rules, or turning a blind-eye to marginal behavior or performance can perpetuate negative attitudes that can infect an organization.

We are all responsible for each other. It is essential that we share a collective sense of mission, values, and culture. If we don't, we become part of the problem, and jeopardize the mission and the lives of our men and women. Every member of the Air Force must embrace our core values as the guiding light that drives what we do. I challenge each of you to apply this philosophy in your service to the Air Force and this great nation.

Department of the Air Force

OVERVIEW

The Department of the Air Force is comprised of the Office of the Secretary of the Air Force (SECAF), the Air Staff, and field units.

Primary Functions of the Air Force.

The Department of the Air Force is separately organized under the Secretary of the Air Force. It operates under the authority, direction, and control of the Secretary of Defense. In general, the Air Force includes aviation forces both combat and service not otherwise assigned to other services. It is organized, trained, and equipped primarily for prompt and sustained offensive and defensive air and space operations. It is responsible for the preparation of the air forces necessary for the effective prosecution of war except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Air Force to meet the needs of war. The Air Force consists of the Regular Air Force, the Air National Guard while

in the service of the United States, the Air Force Reserve, and civilian employees making the Total Force.

Some of the Major Functions of the Air Force

- Organize, train, equip, and provide forces for the conduct of prompt and sustained combat operations in the air and space—specifically, forces to defend the United States against air attack, gain and maintain general air supremacy, defeat enemy air forces, conduct space operations, control vital air areas, and establish local air superiority;
- Organize, train, equip, and provide forces for appropriate air and missile defense and space control operations, including forces for the strategic defense of the United States, in accordance with joint doctrines;
- Organize, train, equip, and provide forces for strategic air and missile warfare; organize, equip, and provide forces for joint amphibious, space, and airborne operations;
- Organize, train, equip, and provide forces for close air support and air logistic support to the Army and other forces, including airlift, air support, resupply of airborne operations, aerial photography, tactical air reconnaissance, and air interdiction of enemy land forces and communications;
- Organize, train, equip, and provide forces for air transport for the Armed Forces;
- Develop doctrines, procedures, and equipment for air defense from land areas;
- Furnish launch and space support for the Department of Defense;

- Organize, train, equip, and furnish land-based tanker forces for the in-flight refueling support of strategic operations and deployments of aircraft of the Armed Forces and Air Force tactical operations;
- Organize, train, equip, and furnish forces to operate air lines of communications; and
- Organize, train, equip, and furnish forces for the support and conduct of special operations.

Collateral Functions of the Air Force include:

- Surface sea surveillance and antisurface ship warfare through air operations,
- Antisubmarine warfare and antiair warfare operations to protect sea lines of communications,
- Aerial minelaying operations, and
- Air-to-air refueling in support of naval campaigns.

AIR FORCE ORGANIZATIONS

Department of the Air Force

SECAF.

The Office of the SECAF includes the Secretary, Under Secretary, Assistant Secretaries, General Counsel, the Inspector General, Air Reserve Forces Policy Committee, and other offices and positions established by law or the SECAF. The Office of the SECAF has responsibility for acquisition and auditing, comptroller issues (including financial management), inspector general matters, legislative affairs, and public affairs.

Air Staff.

The Air Staff primarily consists of military advisors to the CSAF and the SECAF. This includes the Chief of Staff, Vice Chief of Staff, and Assistant Vice Chief of Staff, the Chief Master Sergeant of the Air Force (CMSAF), five deputy chiefs of staff (DCS), the US Air Force Surgeon General, the Judge Advocate General, the Chief of the Air Force Reserve, and additional military and civilian personnel as the SECAF deems necessary.

Field Units.

The Department of the Air Force field units are Major Commands (MAJCOMs), field operating agencies (FOA), and direct reporting units (DRU).

MAJCOMs.

The Air Force is organized on a functional basis in the United States and on a geographical basis overseas. A MAJCOM represents a major Air Force subdivision having a specific portion of the Air Force mission. Each MAJCOM is directly subordinate to HQ USAF. MAJCOMs are interrelated and complementary, providing offensive, defensive, and support elements. An operational command consists (in whole or in part) of strategic, tactical, space, or defense forces; or of flying forces that directly support such forces. A support command may provide supplies, weapon systems, support systems, operational support equipment, combat materiel, maintenance, surface transportation, education and training, or special services and other supported organizations. The MAJCOMs in the US Air Force are as follows:

Air Combat Command (ACC). ACC, headquartered at Langley AFB VA, was activated 1 Jun 1992. This MAJCOM is the primary provider of air combat forces to America's unified combatant commands.

Mission. ACC operates fighters, bombers, reconnaissance, battle management, and theater airlift aircraft, as well as command, control, communications, and intelligence systems. As a force provider, ACC organizes, trains, equips, and maintains combat-ready forces for rapid deployment and employment while ensuring strategic air defense forces are ready to meet the challenges of peacetime air sovereignty and wartime air defense. ACC provides nuclear forces for US Strategic Command and theater air forces for the five geographic unified commands (US Joint Forces Command, US European Command, US Pacific Command, US Central Command, and US Southern Command). ACC also provides air defense forces to the NORAD.

Air Mobility Command (AMC). AMC, headquartered at Scott AFB IL, was created 1 Jun 1992. AMC provides America's Global Reach. This rapid, flexible, and responsive air mobility promotes stability in regions by keeping America's capability and character highly visible.

Mission. AMC's primary mission is rapid global mobility and sustainment for America's Armed Forces. The command also plays a crucial role in providing humanitarian support at home and around the world. AMC's active duty, ANG, AFR, and civilians provide tactical and strategic airlift and aerial refueling for all of America's Armed Forces. Many special duty and operational support aircraft and stateside aeromedical evacuation missions are also assigned to AMC. On 1 April 1997, stateside-based C-130E/H and C-21 aircraft returned to AMC's stewardship.

Air Force Space Command (AFSPC). AFSPC, created 1 Sep 1982, is headquartered at Peterson AFB CO. AFSPC defends America through its space and intercontinental ballistic missile (ICBM) operations, vital force elements in projecting global reach and global power. AFSPC is a key factor in implementing the AEF organizational structure.

Mission. AFSPC assures access to and exploitation of space and space-based capabilities for the war fighter. The command is a "cradle-to-grave" organization that develops, operates, and supports space systems. The men and women of AFSPC provide missile warning; global navigation and weather; satellite communications; space surveillance; spacelift; satellite command and control; and strategic nuclear deterrence for deployed forces and the Nation.

Pacific Air Forces (PACAF). PACAF, headquartered at Hickam AFB, HI, organizes, trains, and equips combat-ready forces to meet wartime and contingency taskings as the principle air, space, and information component of US Pacific Command (PACOM).

Mission. PACAF's primary mission is to provide ready air, space, and information power to promote US interests in the Asia-Pacific region during peacetime, through crisis, and in war. The forward presence of PACAF forces ensures stability in the region, dissuades and deters potential adversaries, and overcomes the tyranny of distance that characterizes the entire Pacific theater of operations. PACAF's area of responsibility includes over 50% of the Earth's surface extending from the west coast of the United States to the east coast of Africa and from the Arctic to Antarctica-more than 105 million square miles. The area is home to nearly 2.5 billion people living in 43 countries and 30 territories.

US Air Forces in Europe (USAFE). USAFE, headquartered at Ramstein AB GE, commands, deploys, and sustains air and space expeditionary forces to execute the full spectrum of military operations. USAFE is responsible for organizing, training, and equipping its assigned forces. USAFE is the principal air component of the unified US European Command (USEUCOM) and provides air forces for USEUCOM-directed operations.

The USAFE Commander is dual-hatted and as North Atlantic Treaty Organization's (NATO) Air Commander Ramstein, he also commands Component Command-Air Headquarters Ramstein, one of two air component commands in the NATO area of responsibility. As part of this alliance, USAFE provides air forces for both NATO air components known as Component Command-Air Ramstein and Component Command-Air Izmir.

Mission. USAFE supports US military plans and operations in Europe, the Mediterranean, the Middle East, and most of Africa. As witnessed in the command's support of contingency and humanitarian operations throughout Europe and Africa, USAFE remains a highly responsive combat command with a rapidly deployable expeditionary force. The USAFE mission is to command, deploy, and sustain air and space expeditionary forces to execute the

full spectrum of military operations for America and its allies. In peacetime, USAFE organizes, trains, equips, and sustains forces to produce specific capabilities needed to act unilaterally or in concert with coalition partners to enhance the security of NATO and its partners or to advance US interests. During wartime conditions, USAFE's role is to provide expeditionary forces, usually as part of an integrated joint force to achieve US national, NATO, and/or coalition objectives. The command's resources perform a broad range of air and space power functions: counterair; counterland; counterinformation; command and control; airlift; air refueling; intelligence, surveillance, reconnaissance (ISR); and weather services. Assets from other MAJCOMs, the ANG, or from other US military components may provide augmentation to USAFE forces.

Air Education and Training Command (AETC). AETC, headquartered at Randolph AFB TX, was established 1 Jul 1993 with the realignment of Air Training Command and Air University. AETC is responsible for the free world's largest training system.

Mission. AETC recruits new people into the US Air Force and provides them with military, technical, and flying training. AETC also provides precommissioning, professional military, and continuing education. During their careers, every Air Force officer and enlisted person receives education and training administered by AETC.

Air Force Materiel Command (AFMC). AFMC, headquartered at Wright-Patterson AFB OH, was created 1 Jul 1992. The command was formed through the reorganization of Air Force Logistics Command and Air Force Systems Command.

Mission. AFMC's mission: Deliver war-winning... • Technology • Acquisition Support • Sustainment... expeditionary capabilities to the warfighter.

Air Force Special Operations Command (AFSOC). AFSOC, headquartered at Hurlburt Field FL, was established 22 May 1990. AFSOC is the Air Force component of US Special Operations Command.

Mission. AFSOC is America's specialized air power...a step ahead in a changing world, providing combat search and rescue, and delivering special operations power anytime, anywhere. AFSOC provides AF special operations and CSAR forces for worldwide deployment and assignment to regional unified commands. AFSOC core tasks are grouped into seven mission areas: shaping the battlefield; information operations; precision engagement; SOF mobility; agile combat support; aerospace interface; and personnel recovery/recovery operations.

Air Force Reserve Command (AFRC). The AFRC, headquartered at Robins AFB GA, became a MAJ-COM of the Air Force on 17 Feb 1997. Previously, the AFR was an FOA.

Mission. AFRC's mission is to provide citizen Airmen to defend the United States and protect its interests through air and space power. AFRC Vision: Citizen Airmen fully engaged in global vigilance, reach, and power.

Air National Guard (ANG). The ANG is administered by the National Guard Bureau, a joint bureau of the departments of the Army and Air Force, located in the Pentagon, Washington DC. It is one of the seven Reserve components of the United States Armed Forces that augment the active components in the perfommance of their missions.

NOTE: The ANG is not a MAJ-COM, but is a very important component of the Total Force in offensive, defensive, and relief operations.

Mission. The ANG has both a federal and state mission. The dual mission, a provision of the US Constitution and the statute, results in each guardsman holding membership in his or her state National Guard and in the National Guard of the United States.

Federal Mission. The ANG's federal mission is to maintain well-trained and well-equipped units available for prompt mobilization during war and to provide assistance during national emergencies (such as natural disasters or civil disturbances). During peacetime, the combat-ready units and support units are assigned to most Air Force MAJCOMs to carry out missions compatible with training, mobilization readiness, and contingency operations. The ANG provides almost half of the Air Force's tactical airlift support, combat communications functions, aeromedical evacuations, and aerial refueling. In addition, the ANG has total responsibility for air defense of the entire United States.

State Mission. When ANG units are not mobilized or under federal control, they report to the governor of their respective state, territory (Puerto Rico, Guam, Virgin Islands), or the commanding general of the District of Columbia National Guard. The adjutant general of the state or territory supervises each of the 54 National Guard organizations. Under state law, the ANG provides protection of life and property and preserves peace, order, and public safety.

Field Operating Agency (FOA).

FOAs are subdivisions of the Air Force directly subordinate to a headquarters US Air Force functional manager. A FOA performs field activities beyond the scope of the MAJCOMs. The activities are specialized or associated with an Air Force-wide mission and do not include functions performed in management headquarters (such as AMC), unless specifically directed by a DoD authority. Two examples are the Air Force Personnel Center (AFPC) under the DCS, Personnel, and the Air

Force Office of Special Investigations (AFOSI) under the Inspector General. Similar organizations at MAJCOM level are called MAJCOM FOAs.

Direct Reporting Unit (DRU).

DRUs are Air Force subdivisions directly subordinate to the CSAF. A DRU performs a mission that does not fit into any of the MAJCOMs. A DRU has many of the same administrative and organizational responsibilities as a MAJCOM. Two examples are the USAF Academy and the Air Force Doctrine Center.

Lower Levels of Command.

Below the MAJCOMs are the following levels, in descending order: Numbered Air Force (NAF), wing, group, squadron, and flight.

Numbered Air Force (NAF).

The NAF is a level of command directly under a MAJCOM. NAFs are tactical echelons that provide operational leadership and supervision. They are not management headquarters and do not have complete functional staffs. Many NAFs are responsible for MAJCOM operations in a specific geographic region or theater of operations. The number of personnel assigned varies, but should not exceed 99 manpower authorizations without an Air Staff waiver. A NAF is assigned subordinate units, such as wings, groups, and squadrons.

Wing.

The wing is a level of command below the NAF. A wing has approximately 1,000 to 5,000 personnel and a distinct mission with significant scope. It is responsible for maintaining the installation and may have several squadrons in more than one dependent group. A wing may be an operational wing, an air base wing, or a specialized mission wing.

Operational Wing. An operational wing is one that has an operations group and related operational mission activity assigned to it. When an operational wing performs the primary mission of the base, it usually maintains and operates the base. In addition, an operational wing is capable of self-support in functional areas like maintenance, supply, and munitions, as needed. When an operational wing is a tenant organization, the host command provides it with varying degrees of base and logistics support.

Air Base Wing. An air base wing performs a support function rather than an operational mission. It maintains and operates a base. An air base wing often provides functional support to a MAJCOM headquarters.

Specialized Mission Wing. A specialized mission wing performs a specialized mission and usually does not have aircraft or missiles assigned to it. Examples include intelligence wings, training wings, and so on. This wing may be either a host or a tenant wing, depending on whether it maintains and operates the base.

Group.

A group is a level of command below the wing. Like the NAF, it is a tactical echelon with minimal staff support. A group usually has two or more subordinate units. A dependent group is a mission, logistics, support, medical, or large functional unit, such as a civil engineer group. Such groups may possess small supporting staff elements, such as standardization and evaluation or quality control, that are organized as sections. An independent group has the same functions and responsibilities as a like-type wing, but its scope and size do not warrant wing-level designation. A group has approximately 500 to 2,000 personnel.

Squadron.

The squadron is the basic unit in the Air Force. A squadron may be either a mission unit, such as an operational flying squadron, or a functional unit, such as a civil engineer, services, security forces, or logistics readiness squadron. Squadrons vary in size according to responsibility. A squadron has approximately 50 to 750 personnel.

Flight.

If internal subdivision is required, a flight may consist of sections, then elements. A flight may be either a numbered, alpha, or functional flight.

Numbered Flight. A numbered flight is the lowest level unit in the Air Force. A flight incorporates smaller elements into an organized unit. Its administrative characteristics, such as strength reporting, are like those of a squadron.

Alpha Flight. Alpha flights are part of a squadron (usually a mission squadron) and composed of several elements that perform identical missions. Because an alpha flight is not a unit, it is not subject to unit reporting.

Functional Flight. Functional flights are usually part of a squadron and composed of elements that perform specific missions. Because a functional flight is not a unit, it is not subject to unit reporting.

Air Reserve Components (ARC).

Components.

The Air National Guard (ANG) and Air Force Reserve (AFR) form a significant part of our air and space capability. Together they are called the ARC. Forces are drawn from the ARC when circumstances require the active force to rapidly expand. AFPD 10-3, Air Reserve Component Forces, establishes policy to fully integrate the ANG, AFR, and active Air Force into a single Total Force.

Staffing and Equipping.

ARC forces are staffed and trained to meet the same training standards and readiness levels as active component forces and are supplied with the same equipment on an equal priority. Equipment may not be withdrawn, diverted, or reassigned to the active force for other commitments

without the SECDEF's written approval. To ensure responsiveness and combat readiness, ARC forces are continuously evaluated and modernized.

Use.

Under the Total Force policy established by DoD in 1973, both active and reserve assets are considered parts of a single US military resource. All aspects of active and reserve forces are considered when determining an appropriate force mix. Factors include contribution of forces to national security, availability of forces in view of time, statutory or regulatory constraints, and the cost to equip and maintain forces. Considerations unique to ANG units include their dual state and federal missions.

Organization.

ANG and AFR units are organized parallel to similar active force units with one exception. ARC units are sometimes separated to take advantage of state or regional demographics and cannot be centralized at major, multi-squadron bases, as would be the case with active duty resources. This exception is beneficial because it implements a strong relationship with the civilian community and builds public support for the Air Force as a whole.

Jurisdiction.

Command jurisdiction for nonmobilized ANG units is vested in the governor of the state, commonwealth, or possession, or in the President, who in essence is the governor of the District of Columbia. The President delegates authority to the Secretary of the Army to carry out the powers of the President as "governor" of the District of Columbia. Command of nonmobilized AFR units is exercised through the Commander, Air Force Reserve,

who, in turn, is responsible to the CSAF. Command of nonmobilized AFR individual mobilization augmentees (IMA) is exercised through the unit of assignment. When the President authorizes involuntary activation, the SECAF delegates authority to gaining MAJCOM commanders who order ANG and AFR forces to active duty. When activated, operational command of ARC forces transfers to the gaining MAJCOM commander who is also responsible for establishing training resources for all assigned ARC forces.

The Thunderbirds are the US Air Force's air demonstration squadron. The Thunderbirds demonstrate to the American taxpayer and people around the world the awesome capabilities of the United States Air Force and the quality and professionalism of the people who make up the most dominant air and space force in the world. Representing the more than 693,000 men and women that make up the Active Duty, Guard and Reserve Air Force, the Thunderbirds are your Ambassadors in Blue…the face of America's Air Force. Every time the Thunderbirds come to town, they are charged with showcasing the vigilance, talent and spirit found in our fellow Airmen serving a most noble call to duty. The team is 130 Airmen strong, bringing together 29 career fields working in unison to accomplish one mission. The squadron's goal is to make those who witness their demonstration proud of this great nation's armed forces, and to inspire the next generation of Airmen.

A Thunderbird performance highlights the skills and training indicative of all Air Force members. The hour-long demonstration brings together years of training and a lifetime of dreaming, to show off what the Air Force is all about. The

The Thunderbirds

ground ceremony, along with the sharp movements and rhythm of the crew chiefs, showcases the utmost professionalism and esprit shared by our enlisted corps. As the jets take to the skies, the maneuvers demonstrate the full spectrum of skills all fighter pilots possess, from the loops, rolls and formation flight required of a novice pilot to the advanced maneuvers of a fully qualified combat aviator. A Thunderbirds air demonstration is a mix of six Lockheed Martin F-16 Fighting Falcon aircraft, performing formation flying and solo routines. The four-aircraft Diamond Formation demonstrates the training and precision mastered by all Air Force pilots, as well as the gracefulness of the F-16. The two solos highlight the maximum capabilities and sheer power of the Air Force's frontline fighters.

Human Relations Principles

All members of America's Air Force are entitled to a positive work environment free from any form of harassment. As a matter of policy and tradition, Air Force leadership promote an environment free from personal, social, or institutional barriers that prevent service members from rising to the highest level of responsibility possible. Service members shall be evaluated only on individual merit, fitness, and capability. Unlawful discrimination against persons or groups based on race, color, religion, sex, or national origin is contrary to good order and discipline and is counterproductive to combat readiness and mission accomplishment. The Air Force standard is zero tolerance for any form of unlawful discriminatory behavior, sexual harassment or sexual violence.

Developing Airmen: We encourage any talented and motivated people outside of the Air Force to join our team. The Air Force needs the collective talents that all Americans possess. A diverse talent pool provides the Air Force a team capable of coping with virtually any situation anywhere on the globe. Unless we inclusively develop and mentor all of our Airmen, over time we could lose the heart of our combat capability.

Technology-to-Warfighting: Technological realities require us to constantly seek Airmen who are innovative, out-of-the-box thinkers, and problem-solvers. We need to continually attract future Airmen who can apply practical principles in a complex and dynamic environment. Our Airmen must have the ability to translate technical tools into combat capability. Cutting edge technology alone

is not enough to win America's wars—it takes dedicated Airmen to exploit any new technology.

Integrating Operations: Cultural competence is set of skills, knowledge, and experiences that allow individuals to increase their understanding and appreciation of cultural differences, similarities within, among, and between individuals, groups, organizations, and functional communities. Warfighting in the 21st Century will increasingly involve joint and coalitions operations, which require Airmen to relate to others across multi-cultural boundaries. Airmen who can operate beyond their own cultural perspective will be the most successful in our diverse Air Force.

Applying Human Relations Principles begins with individual "willingness." Airmen must actively engage in the process of continual self-awareness. Airmen must be aware of personal assumptions, values, bias, capabilities and limitations. This process also involves Airmen keeping an open mind by learning and understanding of other cultures. Air Force members must attempt to understand others, situations, and organizational systems from multiple viewpoints and perspectives. Demonstrates that the leader understands and values the fact that a diverse Air Force embodies different perspectives and approaches pursuing mission excellence. The Air Force expects its Airmen to:

- Bring members of diverse backgrounds and experiences together in ways that improve the performance of all members
- Encourage and facilitate diverse ideas and perspectives in team interactions
- Challenge the policies, practices, and processes that limit the growth and development of potential leaders from all groups

- Create an expectation of high standards of performance from all members
- Stimulate personal development to leverage the maximum abilities of all members
- Be equipped and equip others with the ability to understand and utilize the unique strengths and perspectives of all members
- Share responsibility and opportunity with all members.

To achieve these goals Airmen adhere to these human relations principles:

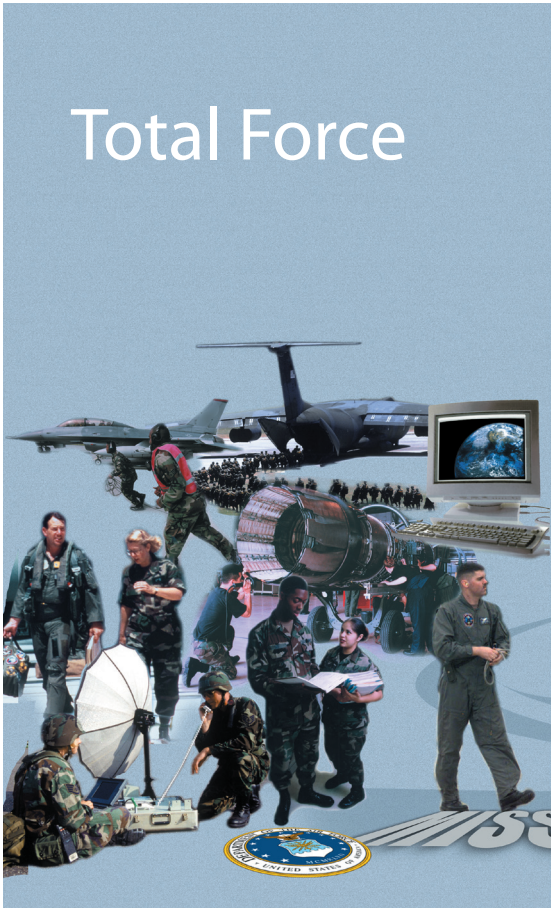
Respect: Consideration and appreciation for another's beliefs, opinions, and feelings

Dignity: Treating all people in a manner that reflects their worth as a human being

Courage: Courage to do always do the right thing for the right reasons, no matter the internal or external pressures to the contrary.

To the world's greatest Air Force we must be a diverse team representative of the society we serve and defend. America's Air Force must have a culturally skilled and knowledgeable workforce capable of executing the Air Force mission globally. Our Air Force team needs leaders and followers equipped with language skills, international expertise, and cultural awareness to meet this objective. The 21st Century Air Expeditionary Force requires all Airmen to be responsible for applying and adhering to these principles.

Total Force



The total force is comprised of Active, Air National Guard, and Air Force Reserve (military and civilian members) seamlessly integrated in air and space operations. The Air National Guard and Air Force Reserve work side by side in all facets of operations to accomplish the Air Force mission. Integrated total force units consist of personnel—all assigned to the same wing or squadron—in different work status. An integrated unit consists of two or more components of Active, Guard, Reserve, and civilian. One example is the 116th Air Control Wing which operates the JSTARS aircraft at Robins Air Force Base in Georgia. The 116th employs an "integrated wing" with both Air Force and Air National Guard personnel.

The Director, Air National Guard leads over 104,000 Guard members in more than 88 flying units and 200 geographically separated units throughout the United States, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands from headquarters in Arlington, Virginia.

The Chief, Air Force Reserve is headquartered at the Pentagon in Washington, D.C. and serves as principal adviser on Reserve matters to the Air Force Chief of Staff. As Commander of Air Force Reserve Command, located at Robins Air Force Base, Georgia, he has full responsibility for the supervision of all US Air Force Reserve units around the world. The Air Force Reserve Command is comprised of over 73,000 personnel in 35 flying wings equipped with 447 assigned aircraft and nine associate units that share aircraft with an active-duty unit. There also four space operations squadrons that share the satellite control mission with the active force and more than 620 mission support units.

"I encourage you, the men and women of today's Air Force-Active, Guard, Reserve and civilian—to think creatively, to develop new efforts and new approaches. Together we can enhance the efficiency, the flexibility, and the capability of our 21st Century Air Force."

General John P. Jumper, USAF

Air Force Auxiliary (Civil Air Patrol)

The Air Force Auxiliary, also known as the Civil Air Patrol (CAP), serves in a dual capacity as both a Federally chartered non-profit corporation and the volunteer civilian auxiliary of the United States Air Force established under public law.

The Auxiliary is made up of over 64,500 CAP members who volunteer their time, services, and resources to conduct three primary missions: Flight Operations, Cadet Programs and Aerospace Education.

CAP is referred to as the auxiliary only when employed by the Air Force and this distinction is currently being incorporated into policy and doctrine.

In accordance with public law, the auxiliary accomplishes missions in support of local, state and federal agencies on behalf of the Air Force. These missions include: search and rescue initiatives, as well as disaster response and homeland security operations that provide an Air Force presence in communities across the nation, a vital link between the Air Force and the population at large.

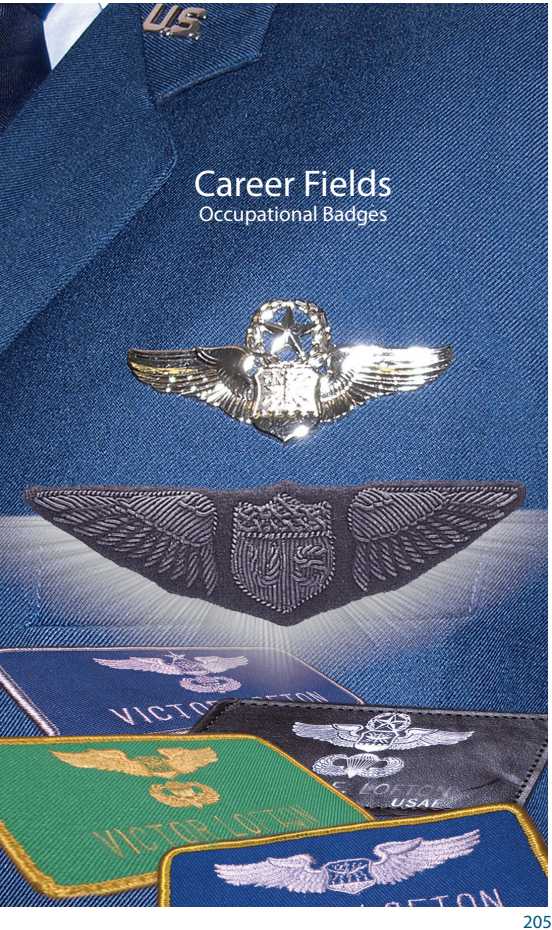
The Air Force Auxiliary is an official part of the Air Force team and is considered an instrumental part of our "Air Force Family." Although Auxiliary uniforms are similar to AF uniforms, the displayed rank does not confer Officer or NCO status, or any Air Force protocol requirements. However, all Air Force personnel are

responsible for developing and maintaining a strong, positive relationship between the Air Force and our Auxiliary. Presently, plans are underway to expand the role that CAP plays in homeland security.

Heritage Quote

"After the German surrender, one of Hitler's high-ranking naval officers was asked why the Nazi U-boats had been withdrawn from US coastal waters early in 1943. The answer was exploded in a curt guttural: 'It was because of those damned little red and yellow planes!'"

— From Robert E. Neprud's Flying Minute Men


Career Fields
Occupational Badges

Astronaut

Pilot

Navigator/Observer

Weapons Director

Flight Surgeon

Flight Nurse

Officer Aircrew Member

Enlisted Aircrew

Missile with
Operations Designator

Missile

Air Traffic Control

Acquisition &
Financial
Management

Band

Chaplain Service Support

Command & Control

Civil Engineer

Commander

Communications & Information

Explosive Ordnance Disposal

Force Protection

Historian

Information Management

Intelligence

Judge Advocate

Logistics Plans

Logistics Readiness

Maintenance

Manpower &
Personnel

Meteorologist

Operations Support

Parachutist

Firefighter

Readiness

Paralegal

Public Affairs

Services

Space/Missile

Supply Fuels

Transportation

Weapons Director

Biomedical
Science Corps

Dental Corps

Nurse Corps

Enlisted Medical

Medical
Service Corps

Medical Corps

Chaplain Jewish

Chaplain Buddhist

Chaplain Christian

Chaplain Muslim

Specialized Headgear

Berets

Combat Control Team

Weather Parachutist

Security Forces

Tactical Air Control Party

Pararescue

Linguists/FAOs

What is a Foreign Area Officer (FAO)?

Cadre of officers who possess foreign language competency and regional expertise essential for effective interaction with foreign governments, militaries and organizations, enabling the Air Force to respond quickly and effectively to Global Engagement needs worldwide.

What is the purpose of the FAO Program?

FAOs play a critical engagement role advising regional commanders, supporting force protection programs, establishing cooperative relationships with host nation partners and supporting the full range of Global Engagement activities from humanitarian relief operations to coalition building in support of major theatre warfare.

Arabic
Chinese (Mandarin)
French
German
Greek
Italian
Japanese
Korean
Persian
Persian-Farsi
Portuguese
Russian
Serbian-Croatian
Spanish

Air and Space Expeditionary Force

Air and Space Expeditionary Force (AEF)

Since the end of the Cold War, the Air Force has seen an exponential increase in worldwide taskings. Meeting this challenge required significant changes in the way the Air Force trains, organizes, and deploys to support Combatant Commanders and Joint Force Commander requirements. The AEF has been critical in transforming the Air Force from a threat-based, forward-deployed Cold War force to a flexible capabilities-based force able to conduct a wide range of operations throughout the world in today's high operational tempo environment. The expeditionary mindset embraces the unique characteristics of air and space power-range, speed, flexibility, and precision.

Expeditionary Capabilities

The AEF divides Air Force Combat Air Forces, Mobility Air Forces resources and Expeditionary Combat Support resources across ten AEFs (five AEF pairs). In addition to the forces assigned to the AEFs, key enabling forces such as Stealth, Space, and cruise missile capabilities are either on-call or always available to augment the 10 AEFs. The AEFs are the mechanism through which the Air Force makes forces available to meet the combatant commander requirements

for rotational or crisis response forces. The Air Force has the ability to keep up to two AEFs deployed at all times. In times of crisis the AEF is able to surge to increase deployable capability to 4 AEFs for up to one AEF cycle (20 months). When expeditionary air and space forces are needed anywhere in the world the Air Force uses capabilities from the two on-call AEFs to create an Air and Space Expeditionary Task Force (AETF) which pulls special resources from the AEFs and combines them in "capabilities packages" to meet the combatant commander's requirement. An AETF may be as small as a single Air and Space Expeditionary Group (AEG) or as large as a numbered expeditionary air force comprised of multiple Air and Space Expeditionary Wings (AEW). These AEF rotational forces and forward permanent-based forces underpin the Air Force ability to provide global AEF presence. Airmen from across the Air Force contribute to these expeditionary capabilities as deployable members assigned to an AEF.

AEF Rotation

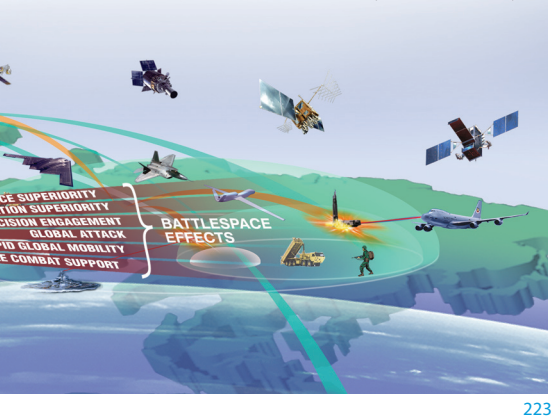
The AEF uses a 20-month cycle with all 10 AEFs "on-line" to support worldwide requirements at all times. Over the 20 month AEF cycle each AEF pair has a 4-month designated "eligibility" period. During this period, the two AEFs are either deployed or on alert for daily, worldwide expeditionary taskings. The remaining eight

AEFs are in various stages of recovery, training, or preparatory spin-up. Additionally, forces from AEFs 2, 4, 8, and 9, make-up an AETF permanently forward deployed in the Republic of Korea designated as 7th Expeditionary Air Force. Other AETFs are designated and, when activated, will be sourced from the alert AEF pair. While Air Force combat forces cycle through deployment eligibility periods, they sustain wartime readiness throughout the 20-month AEF cycle. The normal 14-month training period concentrates on unit missions and basic proficiency events. The 2-3 month deployment "spin-up" period focuses unit activities on area of responsibility (AOR) specific events required (if known) for the 4-month on call or deployment eligibility period that follows. Following the deployment or on call period, units enter the major command (MAJCOM) defined

recovery period. During the recovery period, units restore stocks of consumables and munitions expended in preparation for the next AEF "eligibility" cycle. While personnel may change units or a unit may change AEFs from one cycle to another, the AEF cycle provides the Air Force and Airman with a predictable cycle for planning purposes. The AEF cycle thus precludes the need for "tiered" readiness by allowing Air Force combat forces to remain current and qualified for any contingency or operational plan. The first AEF cycle began on 1 October 1999 and lasted through 30 November 2000.

Surge Operations

At times the requirements for air and space forces will be greater than can be supplied by the two on-call AEFs. When directed by the Secretary of



Defense to provide forces above this sustainable limit the AEF enters "surge" operations. During surge up to 4 AEFs can be deployed simultaneously for up to a year. To accomplish this surge mission AEF members may be required to deploy for 6 months. Surge operations above 4 AEFs and longer than a year are possible, however this constitutes a "maximum surge" that requires a post surge reconstitution period during which the AEF is unable to maintain the entire AEF force at normal levels of readiness.

Future AEFs

The Air Force will continue to improve its expeditionary capabilities as it becomes lighter, leaner and more lethal. The Air Force is already responsive, but it will become even more so with transformation efforts underway. An AEF will

be able to deploy in 48 hours, fast enough to curb many crises before they escalate. The Air Force vision is to be able to rapidly deploy up to 5 AEFs in 15 days, providing Joint Force commanders expanded operational options. Additionally, the Air Force will expand and improve the organic capabilities of each individual AEF. For example, the size of the battlespace an AEF can control will expand and the AEF will enhance its ability to do real-time, adaptive targeting to dominate this "expanded" battlespace. The number of targets one AEF can engage in a day will dramatically increase. Long-range and stealthy assets will be leveraged to ensure access to any target and rapid neutralization of enemy air defenses to allow joint and combined forces to operate in a permissive environment. Focus will be placed on the expeditionary combat support capabilities that underpin the ability to operate anywhere. Effective, efficient logistics will be key to sustaining expeditionary forces. The harnessing of information technology, rapid transportation, and the strengths of both organic and industrial logistics base will ensure responsive, dependable, precise support. Finally, the skill sets and discipline of our Airmen will be the focus of constant improvement to ensure our Air Force remains the best in the world. The AEF cycle provides a more predictable and stable environment in which to train, re-fit, and equip to ensure necessary Air Force support for the Joint Force Commander can be sustained. In

addition, AEF scheduling makes it easier and more feasible for the Air Force Reserve Component forces to bring their essential contributions to bear by allowing them to plan definitive absences from their civilian employment. This is a critical advantage of the AEF, as Air Reserve Component forces comprise nearly a quarter of the forces assigned to AEFs and a larger percentage for some mission areas. The mission of the Air Force is to fly, fight, and win America's wars. We execute that mission by employing our best resources through the AEF. Although weapon systems and mission support requirements have changed over time, there has been one constant — professional, dedicated young Airmen, like you! When your Nation calls, we will call upon you to join us in defending our homeland and interests around the world. This means you will deploy to a friendly or hostile environment with other Airmen to help us fulfill our mission. To maximize operational efficiency and to minimize your time away from home we created the AEF.

AEF 20-Month Rotational Cycle.

What does this mean to you? It means during your scheduled deployment period expect you will be deployed so be prepared to deploy at a moment's notice. Your commander will provide you an AEF identification card displaying your assigned AEF and eligibility period. It is your responsibility to ensure you are trained and

prepared to deploy prior to your eligibility period. This also requires you to make sure your family and personal matters are taken care of even if you do not have orders to deploy. If you

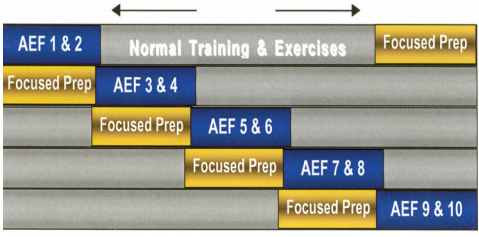


Figure 1. AEF 20-Month Rotational Cycle

are not tasked to deploy at the beginning of the eligibility period, you must remain prepared to deploy throughout your assigned period. This means you should not plan to take leave or be away from your duty station for extended periods of time, and what is planned at your home unit does not depend on you, you are available to complete day-to-day duties, but the job does not depend on your being there-because you may not be. When you deploy you will join other Airmen already deployed to the area of operations (AOR). Figure 2 delineates the Air Force's command and control (C2) construct in a deployed environment. Each Airman, like at home station, is assigned to an Expeditionary Air Force unit that is responsible for their welfare.

The Air and Space Expeditionary Task Force commander (whether an AEG, AEW, or NEAF) presents a "single" Air Force face to the Joint Force Commander. In this joint role the commander is the Commander, Air Force Forces (COMAFFOR). This construct preserves the principle of unity

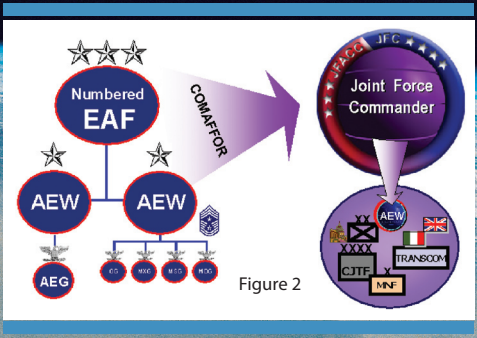


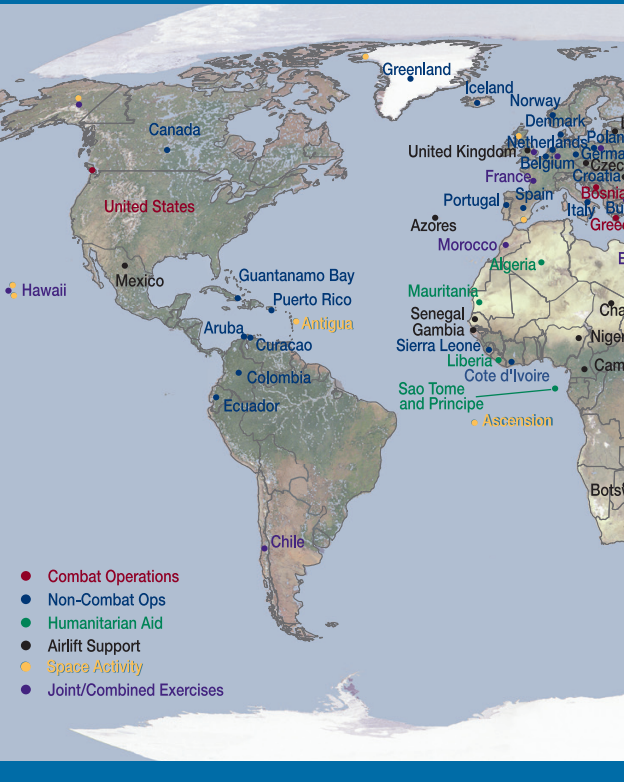
Figure 2

of command.

Air Force Command and Control (Deployed)

Airmen today, whether active duty, guard, or reserve are deployed around the world to further our national objectives. This service to country has given us the freedom of the skies for many decades and our flag flies high-the AEF is our way of life!

Air Force Operations Worldwide 200



04


Russia
Ukraine
Republic
Romania
Kosovo
Georgia
Kyrgyzstan
Uzbekistan
Turkey
Iraq
Cyprus
Iran
Afghanistan
Kuwait
Saudi Arabia
Bahrain
Pakistan
Qatar
United Arab Emirates
Oman
Djibouti
Uganda
Diego Garcia
Zambia
Mozambique
South Africa
Korea
Japan
Hong Kong
Guam
Thailand
Philippines
Malaysia
Singapore
Australia
Antarctica

Distinctive Capabilities

Our distinctive capabilities represent the combination of professional knowledge, air and space power expertise, and technological fluency that, when applied, produces superior military capabilities or effects. They are the basic areas of expertise that the Air Force brings to any activity across the spectrum of military operations, whether as a single Service or in conjunction with other Services in joint operations.

Air and Space Superiority:

The ability to control what moves through air and space to ensure freedom of action for joint and combined forces

Information Superiority:

The ability to control and exploit information to the Nations' advantage to ensure decision dominance

Global Attack:

The ability to engage targets anywhere, anytime to hold any adversary at risk

Precision Engagement:

The ability to deliver desired effects with minimal risk and collateral damage to deny sanctuary to the adversary

Rapid Global Mobility:

The ability to rapidly position forces anywhere in the world to ensure unprecedented responsiveness

Agile Combat Support:

The ability to sustain responsive, persistent, and effective combat operations anywhere in the world

CONOPS

The Air Force has written six concepts of operations (CONOPS) that support capabilities-based planning and the joint vision of combat operations. The CONOPS help analyze the span of joint tasks the Air Force might be asked to perform and define the effects the Air Force can produce. Most important, they help the Air Force identify the capabilities an expeditionary force will need to accomplish its mission, creating a framework that enables us to shape our portfolio.

- Homeland Security CONOPS leverages Air Force capabilities with joint and interagency efforts to prevent, protect, and respond to threats against our homeland-within or beyond US territories.
- Space and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance CONOPS (Space and C4ISR) harnesses the integration of manned, unmanned, and space systems to provide persistent situation awareness and executable decision-quality information to the Joint Force Commander (JFC).
- Global Mobility CONOPS provides Combatant Commanders with the planning, command and control, and operations capabilities to enable timely and effective projection, employment, and sustainment of US power in support of US global interests-precision delivery for operational effect.
- Global Strike CONOPS employs joint power-projection capabilities to engage anti-access and high-value targets, gain access to denied battlespace, and maintain battlespace access for required joint/coalition follow-on operations.
- Global Persistent Attack CONOPS provides a spectrum of capabilities from major combat to peacekeeping and sustainment operations. Global Persistent Attack assumes that once

access conditions are established (i.e. through Global Strike), there will be a need for persistent and sustained operations to maintain air, space, and information dominance.

- Nuclear Response CONOPS provides the deterrent "umbrella" under which conventional forces operate, and, if deterrence fails, avails a scalable response.

This effects-bas-ed focus and capa-bilities-based CONOPS provides:

• Articulation of operational capa-bilities that will prevail in conflicts and avert technological surprises;

- An operational risk and capabilities-based programmatic decision-making focus;
- Budgeting guidance to the Air Force Major Commands for fulfilling capabilities-based solutions to satisfy warfighter requirements;
- Warfighter risk management insights for long-range planning.

Air & Space Doctrine

What is Doctrine?

Air and Space Doctrine is a statement of officially sanctioned beliefs, warfighting principles, and terminology that describes and guides the proper use of air and space forces in military operations. It is what we Airmen have come to understand as a common frame of reference on the best way to prepare and employ air and space forces. Subsequently, operational doctrine shapes the manner in which the Air Force organizes, trains, equips, and sustains its forces.

Doctrine prepares us for future uncertainties and provides a common set of understandings on which Airmen base their decisions. Doctrine consists of the fundamental principles by which military forces guide their actions in support of national objectives; it is the linchpin of successful military operations. It also provides us with common terminology, conveying precision in expressing our ideas.

In application, doctrine should be used with judgment. It must never be dismissed out of hand or through ignorance of its principles, nor should it be employed blindly without due regard for the mission and situation at hand.

On the other hand, following doctrine to the letter is not the fundamental intent. Good doctrine is somewhat akin to a good "commander's intent:" it provides sufficient information on what to do, but does not specifically say how to do it.

> Know the enemy and know yourself;
> in a hundred battles you will
> never be in peril.
>
> SunTzu, offensive strategy

Doctrine explains why air and space power is different from other forms of military power, how it should be organized and employed, and why it's best to do things certain ways. Doctrine is also an educational tool that captures those "bits of handed-down wisdom," as well as recent thinking on expeditionary organization and emerging operational concepts. By bringing all these ideas together in a coherent fashion, doctrine captures our Service's identity.

Joint doctrine, as it applies to air and space power in joint operations, describes the best way to integrate and employ air and space forces with land and maritime forces in military action. Joint doctrine is published in the joint publication system.

In the current evolving environment of expeditionary operations and the emerging arena of

homeland security, doctrine provides an informed starting point for the many decisions Airmen must make in what seems to be a continuous series of deployments. We no longer face the challenge of starting with a blank sheet of paper. With doctrine, Airmen have a good outline of the basic issues:

What is my mission?
How should I approach it?

How should my organization look, and why?

What are my lines of authority within my organization and within the joint force?

What degrees of control do I have over my forces?

How am I supported?
Who do I call for more support?

From one operation to the next, many things are actually constant. Doctrine, properly applied, often can provide a 70-, 80-, or even 90- percent solution to most questions, allowing leaders to focus on the remainder, which usually involves tailoring for the specific operation.

Levels of Air and Space Doctrine

Basic doctrine

States the most fundamental and enduring beliefs that describe and guide the proper use, presentation, and organization of air and space forces in military action. It describes the "elemental properties" of air and space power and provides the Airman's perspective. Air Force Doctrine Document (AFDD) 1 is the Airman's basic doctrine.

Operational doctrine

Contained in AFDD 2-series publications describes more detailed organ-ization of air and space forces and applies the principles of basic doctrine to military actions. Air Force operational tactics, techniques, and procedures (AFOTTP) describe how operations centers and other command and control nodes function and how they plan and employ air, space, and information capabilities to achieve desired effects and objectives at the

operational level of war.

Tactical doctrine

Describes the proper employment of specific Air Force assets, individually or in concert with other assets, to accomplish detailed objectives. Tactical doctrine is codified as tactics, techniques, and procedures (TTP) in Air Force TTP-3 series manuals. Because tactical doctrine is closely associated with employment of technology, change may occur more rapidly than to the other levels of doctrine. Also, due to their sensitive nature, these documents are usually classified.

Summary

Air and space doctrine is an accumulation of knowledge gained primarily from the study and analysis of experience, which may include actual combat or contingency operations, as well as experiments or exercises. As such, doctrine reflects what has worked best with full consideration of what has worked poorly. In those less frequent instances in which experience is lacking or difficult to acquire (as in, for example, nuclear operations), doctrine may be developed through analysis of exercises, wargames, and experiments.

Doctrine development is never complete. Any given Air Force Doctrine Document is a snapshot in time, a reflection of the thinking at the time of its creation. Innovation has always been key to sound doctrinal development and must continue

to play a central role. Doctrine will evolve as new experiences and advances in technology point the way to the operations of the future.

At the very heart of warfare lies doctrine.

> War is a matter of vital importance to the State; the province of life or death; [and war] the road to survial or ruin. It is mandatory that it be thoroughly studied.
>
> -SunTzu, estimates

NATURE OF WAR

Three enduring truths describe the nature of war:

War is an instrument of policy.

War is a complex and chaotic human endeavor.

War is a clash of opposing wills.

PRINCIPLES AND TENETS

Throughout the history of conflict, military leaders have noted certain principles that tended to produce military victory. Known as the principles of war, they are "those aspects of warfare that are universally true and relevant." As members of the joint team, it is imperative that all Airmen appreciate how these principles apply to all forces and fully understand how they pertain to air and space forces.

The nine principles of war—unity of command,

objective, offensive, mass, maneuver, economy of force, security, surprise, and simplicity—are guidelines that Airmen can use to form and select courses of action and concepts of operation.

1. Unity of Command: Ensure unity of effort for every objective under one responsible commander.

2. Objective: Direct military operations toward a defined and attainable goal that contributes to strategic, operational, or tactical aims.

3. Offensive: Act rather than react and dictate the time, place, purpose, scope, intensity, and pace of operations. The initiative must be seized, retained, and fully exploited.

4. Mass: Concentrate combat power at the decisive time and place.

5. Maneuver: Place the enemy in a position of disadvantage through the flexible application of combat power.

6. Economy of Force: Create usable mass by using minimum usable mass by using minimum of

combat power on secondary objectives. Make fullest use of all forces available. Best mix of combat power.

7. Security: Protect friendly forces and their operations from enemy actions which could provide the enemy with unexpected advantage.
8. Surprise: Strike the enemy at a time or place or in a manner for which he is unprepared.
9. Simplicity: Avoid unnecessary complexity in preparing, planning, and conducting military operations.

While the principles of war provide general guidance on the application of military forces, the tenets provide specific considerations for air and space forces. They reflect the specific lessons of air and space operations over history.

The tenets state that air and space power:

Should be centrally controlled and decentrally executed

Is flexible and versatile

Produces synergistic effects

Offers a unique form of persistence

Must achieve concentration of purpose

Must be prioritized

Must be balanced

As with the principles of war, these tenets require informed judgment in application.

Operational Functions of Air and Space Power

The principles of war provide a foundation of warfighting principles universally held by the joint community. The tenets of air and space power refine these further by adding context, from the airman's perspective, about how air and space power should best be applied. The functions of air and space power take this discussion to the next level of granularity, by describing the actual operational constructs Airmen use to apply air and space power to achieve objectives.

Strategic Attack (SA) is defined as those operations intended to directly achieve strategic effects by striking at the enemy's centers of gravity (COG). These operations are designed to achieve their objectives without first having to engage the adversary's fielded military forces in extended operations at the operational and tactical levels of war.

Counterair consists of operations to attain and maintain a desired degree of air superiority by the destruction or neutralization of enemy forces.

Offensive Counterair (OCA) consists of operations to destroy, neutralize, disrupt, or limit enemy air and missile power as close to its source as possible and at a time and place of our choosing.

Defensive Counterair (DCA) concentrates on defeating the enemy's offensive plan and on inflicting unacceptable losses on attacking enemy forces.

Counterspace involves those operations conducted to attain and maintain a desired degree of space superiority by the destruction or neutralization of enemy forces.

Offensive Counterspace (OCS) destroy, or neutralize, an adversary's space system or the information they provide at a time and place of our choosing through attacks on the space, terrestrial, or link elements of space systems.

Defensive Counterspace (DCS) consists of active and passive actions to protect our space-related capabilities from enemy attack or interference.

Counterland involves those operations conducted to attain and maintain a desired degree of superiority over surface operations by the destruction or neutralization of enemy surface forces.

Interdiction is a form of air maneuver. It consists of operations to divert, disrupt, delay, or destroy the enemy's surface military potential before it can be used effectively against friendly forces.

Close Air Support (CAS) consists of air operations against hostile targets in close proximity to friendly forces; further, these operations require detailed integration of each air mission with the fire and

movement of those forces. CAS provides direct support to help friendly surface forces carry out their assigned tasks.

Countersea functions are an extension of Air Force functions into a maritime environment.

Information Operations (IO) are actions taken to influence, affect, or defend information, systems, and/or decision-making to create effects across the battlespace.

Influence Operations employ capabilities to affect behaviors, protect operations, communicate commander's intent, and project accurate information to achieve desired effects across the cognitive battlespace. The elements of influence operations are counterpropaganda operations, psychological operations, military deception, operations security, counterintelligence operations, and public affairs operations.

Electronic warfare operations are those military actions involving the use of electromagnetic and

directed energy to control the electromagnetic spectrum or to attack the enemy across the electromagnetic battlespace.

Network warfare operations are the integrated planning and employment of military capabilities to achieve desired effects across the digital battlespace.

Combat Support encompasses the essential capabilities, functions, activities, and tasks necessary to create and sustain air and space forces. It includes the procurement, maintenance, distribution, and replacement of personnel and materiel.

Agile Combat Support (ACS) is the timely concentration, employment, and sustainment of US military power anywhere—at our initiative, speed, and tempo—that our adversaries cannot match.

Expeditionary Combat Support (ECS) comprises the expeditionary subset of ACS and includes the essential capabilities, functions, activities, and tasks necessary to employ and sustain all elements of aviation and ground combat operations forces in a deployed location.

Command and Control (C2) is the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of an assigned mission. C2 includes both the process by which the commander decides what action is to be taken and the systems that facilitate planning, execution,

and monitoring of those actions.

Airlift is the transportation of personnel and materiel through the air, which can be applied across the entire range of military operations to achieve or support objectives and can achieve tactical through strategic effects.

Air Refueling is the in-flight transfer of fuel between tanker and receiver aircraft.

Spacelift delivers satellites, payloads, and materiel to space. Assured access to space is a key element of U. S. national space policy.

Special Operations are the use of special airpower operations (denied territory mobility, surgical firepower, and special tactics) to conduct the following special operations functions: unconventional warfare, direct action, special reconnaissance, counterterrorism, foreign internal defense, psychological operations, and counterproliferation.

Intelligence is the product resulting from the collection, processing, integration, analysis, evaluation, and interpretation of available information concerning foreign countries or areas.

Surveillance is the function of systematically observing air, space, surface, or subsurface areas, places, persons, or things, by visual, aural, electronic, photographic, or other means. It is a continuing process, not oriented to a specific

target.

Reconnaissance complements surveillance by obtaining specific information about the activities and resources of an enemy or potential enemy through visual observation or other detection methods; or by securing data concerning the meteorological, hydrographic, or geographic characteristics of a particular area.

Combat Search and Rescue (CSAR) is performed by Air Force rescue forces to recover isolated personnel during war or military operations other than war (MOOTW). Accomplished with a mix of dedicated and augmenting assets, personnel recovery (PR) is the umbrella term for operations focusing on recovering captured, missing, or isolated personnel from danger.

Navigation and Positioning provide accurate location and time of reference globally in support of strategic, operational, and tactical operations.

Weather Services provided by the Air Force supply timely and accurate environmental information, including both space environment and atmospheric weather, to Air Force and Army commanders for their objectives and plans at the strategic, operational, and tactical levels.


DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

Code of Conduct for Members of the Armed Forces of the United States

The Articles of the Code.

President Dwight D. Eisenhower first published the Code of Conduct for members of the Armed Forces of the United States on 17 August 1955. In March 1988, President Ronald Reagan amended the code with gender-neutral language.

ARTICLE I.

I am an American, fighting in the forces which guard my country and our way of life. I am prepared to give my life in their defense.

ARTICLE II.

I will never surrender of my own free will. If in command, I will never surrender the members of my command while they still have the means to resist.

ARTICLE III.

If I am captured, I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.

ARTICLE IV.

If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give no information or take part in any action which might be harmful to my comrades. If I am senior, I will take command. If not, I will obey the lawful orders of those appointed over me and will back them up in every way.

ARTICLE V.

When questioned, should I become a prisoner of war, I am required to give name, rank, service number, and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause.

ARTICLE VI.

I will never forget that I am an American, fighting for freedom, responsible for my actions, and dedicated to the principles which made my country free. I will trust in my God and in the United States of America.

Combatant Commands

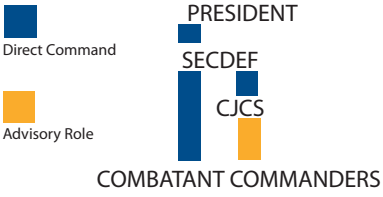
Unified and specified combatant commands were first described in the National Security Act (NSA) of 1947 and the statutory definition of the combatant commands has not changed since then.

- Unified Combatant Command. A military command which has a broad, continuing mission under a single commander and which is composed of forces from two or more military departments.
- Specified Combatant Command. A military command which has a broad, continuing mission and which is normally composed of forces from one military department. There are currently no specified commands, but the option to create such a command still exists.
- The term combatant command means a unified or specified command. Its commander is known as a combatant commander (COCOM).

OPERATIONAL CONTROL of US combat forces are assigned to the nation's Unified Combatant Commands. The chain of command runs from the President to the Secretary of Defense to the Unified Commanders. Orders and other communications from the President or Secretary are transmitted through the Chairman of the Joint Chiefs of Staff.

A Unified Combatant Command is normally organized on a geographical basis, although there are two organized by function. The number of unified combatant commands is not fixed by law or regulation and may vary from time to time.

Operational Chain of Command



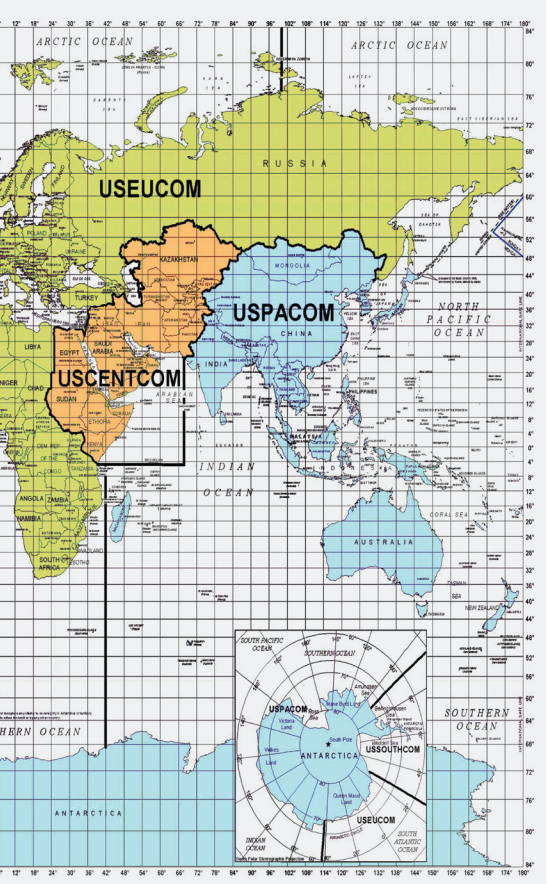
REGIONAL COMBATANT COMMANDS

US European Command (EUCOM)
Stuttgart-Vaihingen, Germany
US Pacific Command (PACOM)
Honolulu, Hawaii
US Southern Command (SOUTHCOM)
Miami, Florida
US Central Command (CENTCOM)
MacDill Air Force Base, Florida
US Northern Command (NORTHCOM)
Peterson Air Force Base, Colorado

FUNCTIONAL COMMANDS

US Joint Forces Command (JFCOM)
Norfolk, Virginia
US Special Operations Command (SOCOM) MacDill Air Force Base, Florida
US Transportation Command (TRANSCOM) Scott Air Force Base, Illinois
US Strategic Command (STRATCOM)
Offutt Air Force Base, Nebraska


ARCTIC OCEAN
GREENLAND
BEAUFORT SEA
BAFFIN BAY
CANADA
HUDSON BAY
LABRADOR SEA
USNORTHCOM
NORTH ATLANTIC OCEAN
UNITED STATES
NORTH PACIFIC OCEAN
MEXICO
GULF OF MEXICO
USPACOM
BRAZIL
USSOUTHCOM
BOLIVIA
SOUTH PACIFIC OCEAN
SOUTH ATLANTIC OCEAN
SCOTIA SEA
WEDDELL SEA
USEUCOM
RUSSIA
ARCTIC OCEAN
North Pole
Greenland Sea
ICELAND
GREENLAND (Denmark)
USPACOM
USNORTHCOM
CANADA


ARCTIC OCEAN
ARCTIC OCEAN
RUSSIA
USEUCOM
KAZAKHSTAN
MONGOLIA
USPACOM
CHINA
NORTH PACIFIC OCEAN
TURKEY
EGYPT
SAUDI ARABIA
LIBYA
CHAD
SUDAN
USCENTCOM
ARABIAN SEA
INDIA
INDIAN OCEAN
ANGOLA
ZAMBIA
NAMIBIA
SOUTH AFRICA
AUSTRALIA
CORAL SEA
NEW ZEALAND
SOUTHERN OCEAN
ANTARCTICA
SOUTH PACIFIC OCEAN
SOUTHERN OCEAN
USPACOM
USSOUTHCOM
USEUCOM
ANTARCTICA
SOUTH ATLANTIC OCEAN
INDIAN OCEAN

Joint Staff - Air Force Staff Directorates

J-1	Manpower & Personnel	A-1
J-2	Intelligence	A-2
J-3	Operations	A-3
J-4	Logistics	A-4
J-5	Strategic Plans & Policy	A-5
J-6	Command, Control, Communications, & Computer Systems	A-6
J-7	Operational Plans & Force Development	A-7
J-8	Force Structure Resources and Assessment	

Functions of Other Services

The Department of the Army is responsible for the preparation of land forces necessary for the effective prosecution of war and military operations short of war, and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Army to meet the needs of war. The Army, within the Department of the Army, includes land combat and service forces and any organic aviation and water transport assigned.

Some of the Major Functions of THE ARMY are to:

- organize, train, and equip forces for the conduct of prompt and sustained combat operations on land—specifically, forces to defeat enemy land forces and to seize, occupy, and defend land areas;
- organize, train, equip, and provide forces for appropriate air and missile defense and space control operations, and for the support and conduct of special operations;

- develop airborne doctrine, procedures, and equipment that are of common interest to Army and Marine Corps;
- organize, equip, and provide Army forces for joint amphibious, airborne, and space operations and train such forces, in accordance with joint doctrines;
- organize, equip, and provide forces for the support and conduct of special operations;
- organize, equip, and provide forces for the support and conduct of psychological operations;
- furnish forces for the occupation of territories abroad;
- conduct the authorized civil works program, including projects for improvement of navigation, flood control, beach erosion control, and other water resource developments in the United States.

A collateral function of the Army is to train forces to interdict enemy sea and airpower and communications through operations on or from land.

The Department of the Navy is responsible for the preparation of the Navy and Marine Corps forces necessary for the effective prosecution of war and military operations short of war and, under the integrated joint mobilization plans, for the expansion of the peacetime component of the Navy and Marine Corps to meet the needs of war. Within the Department of the Navy, the Navy includes naval combat and service forces and such aviation as may be organic.

Some of the Major Functions of
THE NAVY & MARINE CORPS are to:

- organize, equip, and furnish naval forces, including naval close air support and space forces, for the conduct of joint amphibious operations;
- organize, train, equip, and provide forces for strategic nuclear warfare to support strategic deterrence;
- organize, train, equip, and provide forces for reconnaissance, antisubmarine warfare, protection of shipping, aerial refueling and

minelaying, and controlled minefield operations; furnish the afloat forces for strategic sealift;

- furnish air support essential for naval operations;
- organize, train, equip, and provide forces for appropriate air and missile defense and space control operations, including forces required for the strategic defense of the United States, under joint doctrines;
- organize, train, equip, and furnish forces to operate sea lines of communication; and
- organize, train, equip, and furnish forces for the support and conduct of special operations.

Some collateral functions of the Navy and Marine Corps are to:

- interdict enemy land power, airpower, and communications through operations at sea;
- furnish close air and naval support for land operations;
- prepare to participate in the overall air and space effort; and
- establish military government pending transfer of this responsibility.

Specific responsibilities of the Department of the Navy toward the Marine Corps include the maintenance of not less than three combat divisions and three air wings and such other land combat, aviation, and other services as may be organic therein.

Some of the Major Functions of THE MARINE CORPS are to:

- organize, train, and equip Fleet Marine Forces of combined arms, together with supporting air components, for service with the fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign;
- furnish security detachments and organizations for service on naval vessels of the Navy;
- furnish security detachments for protection of naval property at naval stations and bases;
- perform other duties as the President may direct; and
- develop landing force doctrines, tactics, techniques, and equipment that are of common interest to the Army and Marine Corps.

The Coast Guard is a military Service and a branch of the Armed Forces of the United States at all times. It is a Service in the Department of Homeland Security except when operating as part of the Navy on declaration of war or when the President directs.

Some of the Major Functions of THE COAST GUARD are to:

- enforce or assist in enforcement of the law with power to arrest, search, and seize persons and property suspected of violations of Federal law, including drug interdiction;
- administer laws and enforce regulations for the promotion of safety of life and property on and under the high seas and waters subject to US jurisdiction;
- coordinate marine environmental protection response;
- enforce port safety and security;
- enforce commercial vessel safety standards and regulations;
- regulate and control ship movement and anchorage;
- acquire, maintain, and repair short-range aids to navigation;

- establish, operate, and maintain radio navigation;
- develop, establish, maintain, and operate polar and US icebreaking facilities;
- organize, equip, and furnish forces for maritime search and rescue;
- engage in oceanographic research; and,
- maintain a state of readiness to function as a specialized Service in the Navy.

Some of the Major Wartime Functions of THE COAST GUARD are to:

- continue peacetime missions;
- plan and coordinate US coastal defense for the Fleet Commanders through assignment as commanders of US Maritime Defense Zone Atlantic and Pacific; and
- perform naval wartime missions of inshore undersea warfare, mine countermeasures, harbor defense, ocean escort, etc., occurring in the US littoral sea.
- enforce or assist in enforcement of the law with power to arrest, search, and seize persons and property suspected of violations of Federal law, including drug interdiction;
- administer laws and enforce regulations for the promotion of safety of life and property on and under the high seas and waters subject to US jurisdiction;
- coordinate marine environmental protection response;
- enforce port safety and security;
- enforce commercial vessel safety standards and regulations;
- regulate and control ship movement and anchorage;

- acquire, maintain, and repair short-range aids to navigation;
- establish, operate, and maintain radio navigation;
- develop, establish, maintain, and operate polar and US icebreaking facilities;
- organize, equip, and furnish forces for maritime search and rescue;
- engage in oceanographic research; and,
- maintain a state of readiness to function as a specialized Service in the Navy.


DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DoD Military Rank and Insignia

Air Force Ranks

ENLISTED

NO INSIGNIA				
E-1	E-2	E-3	E-4	E-5
AIRMAN BASIC (AB)	AIRMAN (AMN)	AIRMAN FIRST CLASS (A1C)	SENIOR AIRMAN (SrA)	STAFF SERGEANT (SSgt)

E-6	E-7	E-7	E-8	E-8
TECHNICAL SERGEANT (TSgt)	MASTER SERGEANT (MSgt)	FIRST SERGEANT (MSgt)	SENIOR MASTER SERGEANT (SMSgt)	FIRST SERGEANT (SMSgt)

E-9 CHIEF MASTER SERGEANT (CMSgt)	E-9 FIRST SERGEANT (CMSgt)	E-9 COMMAND CHIEF MASTER SERGEANT (CCM)	CHIEF MASTER SERGEANT OF THE AIR FORCE (CMSAF)

OFFICER

O-1
SECOND
LIEUTENANT
(2d Lt)

O-2
FIRST
LIEUTENANT
(1st Lt)

O-3
CAPTAIN
(Capt)

O-4
MAJOR
(Maj)

O-5
LIEUTENANT
COLONEL
(Lt Col)

O-6
COLONEL
(Col)

O-7
BRIGADIER
GENERAL
(Brig Gen)

O-8
MAJOR
GENERAL
(Maj Gen)

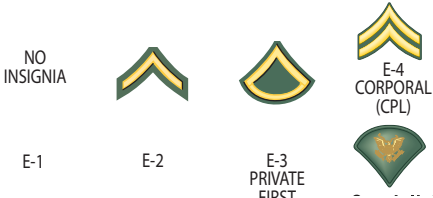
O-9
LIEUTENANT
GENERAL
(Lt Gen)

O-10
GENERAL
(Gen)

GENERAL
OF THE
AIR FORCE

Army Ranks

ENLISTED



NO INSIGNIA

E-1

PRIVATE (PV1)

E-2

PRIVATE (PV2)

E-3 PRIVATE FIRST CLASS (PFC)

E-4 CORPORAL (CPL)

E-4 SPECALIST (SPC)

E-5

SERGEANT (SGT)

E-6

STAFF SERGEANT (SSG)

E-7 SERGEANT FIRST CLASS (SFC)

E-8

MASTER SERGEANT (MSG)

E-8

FIRST SERGEANT (1SG)

E-9

SERGEANT MAJOR (SGM)

E-9 COMMAND SERGEANT MAJOR (CSM)

SERGEANT MAJOR OF THE ARMY (SMA)

OFFICER

O-1 SECOND LIEUTENANT (2LT)

O-2 FIRST LIEUTENANT (1LT)

O-3 CAPTAIN (CPT)

O-4 MAJOR (MAJ)

O-5 LIEUTENANT COLONEL (LTC)

O-6 COLONEL (COL)

O-7 BRIGADIER GENERAL (BG)

O-8 MAJOR GENERAL (MG)

O-9 LIEUTENANT GENERAL (LG)

O-10 GENERAL (GEN)

GENERAL OF THE ARMY (GA)

W-1 Warrant Officer (W01)

W-2 Chief Warrant Officer (CW2)

W-3 Chief Warrant Officer (CW3)

W-4 Chief Warrant Officer (CW4)

W-5 Chief Warrant Officer (CW5)

Navy Ranks

ENLISTED

NO INSIGNIA

E-1
SEAMAN RECRUIT (SR)

E-2
SEAMAN APPRENTICE (SA)

E-3
SEAMAN (SN)

E-4
PETTY OFFICER THIRD CLASS (PO3)

E-5
PETTY OFFICER SECOND CLASS (PO2)

E-6
PETTY OFFICER FIRST CLASS (PO1)

E-7
CHIEF PETTY OFFICER (CPO)

E-8
SENIOR CHIEF PETTY OFFICER (SCPO)

E-9
MASTER CHIEF PETTY OFFICER (MCPO)

E-9
FORCE or FLEET COMMAND MASTER CHIEF PETTY OFFICER (FORMC)

MASTER CHIEF PETTY OFFICER OF THE NAVY (MCPON)

OFFICER

O-1
ENSIGN
(ENS)

O-2
LIEUTENANT
JUNIORGRADE
(LTJG)

O-3
LIEUTENANT
(LT)

O-4
LIEUTENANT
COMMANDER
(LCDR)

O-5
COMMANDER
(CDR)

O-6
CAPTAIN
(CAPT)

O-7
REAR ADMIRAL
LOWER HALF
(RADM)(L)

O-8
REAR ADMIRAL
UPPER HALF
(RADM)(U)

O-9
VICE ADMIRAL
(VADM)

O-10
ADMIRAL
(ADM)

FLEET
ADMIRAL
(FADM)

W-2
Chief Warrant Officer
(CWO2)

W-3
Chief Warrant Officer
(CWO3)

W-4
Chief Warrant Officer
(CWO4)

Marine Corps Ranks

ENLISTED

E-1 PRIVATE (Pvt)

E-2 PRIVATE FIRST (PFC)

E-3 LANCE CORPORAL (LCpl)

E-4 CORPORAL (Cpl)

E-5 SERGEANT (Sgt)

E-6 STAFF SERGEANT (SSgt)

E-7 GUNNERY SERGEANT (GySgt)

E-8 MASTER SERGEANT (MSgt)

E-8 FIRST SERGEANT (1stSgt)

E-9 MASTER GUNNERY SERGEANT (MGySgt)

E-9 SERGEANT MAJOR (SgtMaj)

SERGEANT MAJOR OF THE MARINE CORPS (SgtMajMC)

OFFICER

O-1
SECOND
LIEUTENANT
(2ndLt)

O-2
FIRST
LIEUTENANT
(1stLt)

O-3
CAPTAIN
(Capt)

O-4
MAJOR
(Maj)

O-5
LIEUTENANT
COLONEL
(LtCol)

O-6
COLONEL
(Col)

O-7
BRIGADIER
GENERAL
(BGen)

O-8
MAJOR
GENERAL
(MajGen)

O-9
LIEUTENANT
GENERAL
(LtGen)

O-10
GENERAL
(Gen)

W-1
WARRANT
OFFICER
(W0)

W-2
CHIEF
WARRANT
OFFICER
(CWO2)

W-3
CHIEF
WARRANT
OFFICER
(CWO3)

W-4
CHIEF
WARRANT
OFFICER
(CWO4)

W-5
CHIEF
WARRANT
OFFICER
(CWO5)

Coast Guard Ranks

ENLISTED

E-1

SEAMAN RECRUIT (SR)

E-2

SEAMAN APPRENTICE (SA)

E-3

SEAMAN (SN)

E-4

PETTY OFFICER THIRD CLASS (PO3)

E-5

PETTY OFFICER SECOND CLASS (PO2)

E-6

PETTY OFFICER FIRST CLASS (PO1)

E-7

CHIEF PETTY OFFICER (CPO)

E-8

SENIOR CHIEF PETTY OFFICER (SCPO)

E-9

MASTER CHIEF PETTY OFFICER (MCPO)

E-9

COMMAND MASTER CHIEF (CMC)

MASTER CHIEF PETTY OFFICER OF THE COAST GUARD (MCPO-CG)

OFFICER

O-1
ENSIGN
(ENS)

O-2
LIEUTENANT
JUNIOR GRADE
(LTJG)

O-3
LIEUTENANT
(LT)

O-4
LIEUTENANT
COMMANDER
(LCDR)

O-5
COMMANDER
(CDR)

O-6
CAPTAIN
(CAPT)

O-7
REAR ADMIRAL
LOWER HALF
(RADM)(L)

O-8
REAR ADMIRAL
UPPER HALF
(RADM)(U)

O-9
VICE ADMIRAL
(VADM)

O-10
ADMIRAL
(ADM)

W-2
Chief Warrant Officer (CWO2)

W-3
Chief Warrant Officer (CWO3)

W-4
Chief Warrant Officer (CWO4)

Air Force Jr. ROTC, ROTC, OTS and Cadet Rank

Cadet 2nd Lt | Cadet 1st Lt | Cadet Capt | Cadet Major | Cadet LtCol | Cadet Colonel

Cadet Amn | Cadet Amn1C | Cadet SrAmn | Cadet SSgt

Cadet TSgt | Cadet MSgt | Cadet SMSgt | Cadet CMSgt

OT Rank Insignia

OT 4th Class | OT 3rd Class | OT 2 Lt | OT 1 Lt | OT Capt | OT Major | OT Lt Col | OT Col

Air Force Academy Cadet Badges and Rank

Cadet Solo

Cadet Sr. Aviation Instructor

Cadet Flight

Cadet Soaring Instructor Pilot

Parachutist

Air Assault

Commandant's Pin

Comm/Athletic Pin

Comm/Dean's Pin

Superintendent's Pin

Athletic Pin

Dean's Pin

Dean/Athletic Pin

Bulldog Badge

Recondo Badge

Basic Cadet
No Shoulder Board

Cadet 4th Class
Freshman

Cadet 3rd Class-Soph

Cadet SSgt-Soph

Cadet SSgt-Soph Flag
Bearer-Color Bearer

Cadet SSgt-Group
Color Bearer-Soph

Cadet 2nd Class-Jr

Cadet TSgt-Jr

Cadet MSgt-Jr

Cadet MSgt-Group
Staff-Jr

Cadet MSgt-Wg Staff-Jr

Cadet SMSgt-
Superintendent

Cadet CMSgt-Group
Staff-Jr

Cadet CMSgt-Group Superintendent-Jr

Cadet CMSgt-Wg Superintendent-Jr

Cadet 1st Class-Sr

Cadet Major-Athletic Team Captain-Sr

Cadet 2Lt-Sr

Cadet LtCol-Sr

Cadet 1st Lt-Sr

Cadet LtCol-Wg Honor Chairman-Sr

Cadet Capt-Sr

Cadet Col-Group/CC-Sr

Cadet Capt-Flt/CC-Sr

Cadet Col-Vice Wg Commander-Sr

Cadet Major-Sr

Cadet Col-Wg Commander-Sr

CUSTOMS AND COURTESY

Respect for the Flag

Use the following procedures when showing respect to the flag and the national anthem:

All personnel in uniform and outside must face the flag and salute during the raising and lowering of the flag. Upon the first note of the national anthem or "To the Colors," all personnel in uniform who aren't in formation should stand and face the flag (or the sound of the music if the flag is not visible) and salute. Hold the salute until the last note of the music is played.

All vehicles in motion should come to a stop at the first note of the music and the occupants should sit quietly until the music ends.

When in civilian clothes, face the flag (or the sound of the music if the flag is not visible) and stand at attention with the right hand over the heart.

If indoors during retreat or reveille, there's no need to stand or salute. However, everyone must stand during the playing of the national anthem before a showing of a movie while in the base theater. When listening to a radio or watching television, no specific action is necessary. Additionally, a folded flag is considered cased; therefore, it is not necessary to salute or continue saluting.

Saluting

The salute is a courteous exchange of greetings, with the junior member always saluting the senior member or Medal of Honor recipient first. A salute is also rendered to the flag as a sign of respect. Any Airman, noncommissioned officer, or officer recognizing a need to salute or a need to return one may do so anywhere at any time. When returning or rendering an individual salute, the head and eyes are turned toward the flag or person saluted. When in ranks, the position of attention is maintained unless otherwise directed. The following guidance is offered on exchanging salutes:

Outdoors. Salutes are ex-changed upon recognition between officers or war-rant officers and enlisted members of the Armed Forces when they are in uniform. Saluting out-doors means salutes are exchanged when the persons involved are outside of a building. For example, if a person is on a porch, a covered sidewalk, a bus stop, a

covered or open entryway, or a reviewing stand, the salute will be exchanged with a person on the sidewalk outside of the structure or with a person approaching or in the same structure. This applies both on and off military installations. The junior member should initiate the salute in time to allow the senior officer to return it. To prescribe an exact distance for all circumstances is not practical; however, good judgment should dictate when salutes are exchanged. A superior carrying articles in both hands need not return the salute, but he or she should nod in return or verbally acknowledge the salute. If the junior member is carrying articles in both hands, verbal greetings should be exchanged. Also, use the same procedures when greeting an officer of a foreign nation.

In Formation. Members do not salute or return a salute unless given the command to do so. Normally the person in charge salutes and acknowledges salutes for the whole formation.

In Groups—Not in Formation. When a senior officer approaches, the first individual noticing the officer calls the group to attention. All members face the officer and salute. If the officer addresses an individual or the group, all remain at attention (unless otherwise ordered) until the end of the conversation, at which time they salute the officer.

In Public Gatherings. Salutes between individuals are not required in public gatherings, such as

sporting events or meetings, or when a salute would be inappropriate or impractical.

In Moving Military Vehicles. Exchange of salutes between military pedestrians (including gate sentries) and officers in moving military vehicles is not mandatory. However, when officer passengers are readily identifiable (for example, officers in appropriately marked vehicles), the salute must be rendered.

In the Presence of Civilians. Persons in uniform may salute civilians. The President of the United States, as Commander in Chief of the Armed Forces, is always accorded the honor of a salute.

In a Work Detail. In a work detail, individual workers do not salute. The person in charge salutes for the entire detail.

Indoors. Except for formal reporting, salutes are not rendered.

Military Etiquette

Etiquette is defined as common, everyday courtesy. The military world, like the civilian world, functions more smoothly and pleasantly when members practice good manners.

Simple things like saying "please" and "thank you" help the organization run smoother because people respond more enthusiastically when asked in a courteous manner to do something. They also appreciate knowing their efforts are recognized when told "thank you."

One of the most valuable habits anyone can develop is to be on time. Granted, there are times when a person cannot avoid being late. If this happens, it is best to call ahead to let the people know you'll be late or to reschedule the appointment. Do not keep others waiting.

Address civil service employees properly. As a rule, address them appropriately as "Mr," "Mrs," "Miss," or "Ms" and a last name, unless requested to do otherwise. Always address a superior formally. This is especially important in most foreign countries where use of first names on the job is much more limited than in the United States.

Don't gossip. A discussion of others' personal habits, problems, and activities, real or rumored, often results in quarrels and disputes among people who work together. The morale of any unit may suffer because of feuds that arise from gossip. The best policy is to not gossip and to discourage others from gossiping.

Use proper telephone etiquette. Always be polite

and identify yourself and your organization. When an individual is not available to take a call, ask: "May I take a message?" or "Is there something I may help you with?" If a call is to be returned, write down the individual's name, organization, telephone number, the message, date and time, and then pass this information along to the intended recipient.

Do not lean or sit on desks. Also, do not lean back in a chair or put feet on desks. This type of conduct doesn't present a professional military image.

In general, use common sense and be considerate of other people and insist your subordinates do the same.

Courtesies to Other Services. The collective efforts of the Air Force, Army, and Navy, Marines, and Coast Guard provide for the defense of the country against aggression. All Services are part of the military team; therefore, extend the same military courtesies to members of the other Services. While it is natural that friendly rivalries exist between the Services, military courtesies among Services remain the same. Thus, the members of the other Services are as much comrades-in-arms as are any Airmen.

This is equally true of the friendly armed forces of the United Nations. Salute all commissioned officers and pay the same respect to the national anthems and flags of other nations

as rendered the US national anthem and flag. While it is not necessary to learn the identifying insignia of the military grades of all nations, you should learn the insignia of the most frequently contacted nations, particularly during an overseas assignment.

Respect and Recognition

Common Acts of Courtesy. Common acts of courtesy among all Air Force personnel aid in maintaining discipline and promoting the smooth conduct of affairs in the military establishment. When courtesy falters within a unit, discipline ceases to function and accomplishing the mission is endangered. Many of the Air Force courtesies involve the salute. There are, however, many other courtesies commonly extended to superiors, subordinates, and working associates. The following paragraphs list some of these courtesies:

Always give the senior person, enlisted or commissioned, the position of honor when

walking, riding, or sitting with him or her. The junior person should take the position to the senior's left.

When reporting to an officer indoors, if not under arms, knock once and enter when told to do so. Upon entering, march to approximately two paces from the officer or desk, halt, salute, and report in this manner: "Sir (Ma'am), Airman Smith reports as ordered," or "Sir (Ma'am), Airman Smith reports."

When the conversation is completed, execute a sharp salute and hold it until the officer acknowledges it, then perform the appropriate facing movements and depart.

Unless told otherwise, rise and stand at attention when a senior official enters or departs a room. If more than one person is present, the person who first sees the officer calls the group to attention. However, if there is an officer already in the room who is equal to or has a higher rank than the officer entering the room, do not call the room to attention.

Except in the field under campaign or simulated

campaign conditions, observe certain personal courtesies in association with officers. Unless the officer directs otherwise, stand at attention when speaking to an officer. If in a parked vehicle, always get out before speaking to or replying to a senior who is not in the vehicle.

Military personnel enter automobiles and small boats in reverse order of rank. Juniors will enter a vehicle first (and take their appropriate seat on the senior's left). The senior officer will be the last to enter the vehicle and the first to leave it.

Upon entering or leaving transport aircraft, the senior officer enters last and exits first. This procedure only applies to passengers and not to crewmembers of the aircraft who must be free to carry out their normal duties.

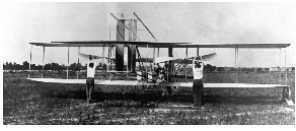
Proper Addresses. Senior service members frequently address juniors by their first names, but this practice does not give juniors the privilege of addressing seniors in any way other than by proper titles. If Airmen are present, senior service members should address junior service members by their titles. Service members of the same grade, when among themselves, may address one another by their given names. Increasingly, service members use first names. Formality, however, is the best policy. Junior service members should always be conservative until they can sense what is appropriate. It is wiser to err by being too formal, rather than too familiar.


Air Force Systems
(by Conflict Era)
Heritage Aircraft
Tail Flashes
Current
Weapons Systems

Heritage Aircraft by Conflict Era

WWI

Wright 1909 Military Flyer



Wright 1911 Modified "B" Flyer

De Havilland DH-4

Spad (VII, XIII, and XVI)

Curtiss JN-4D "Jenny"

Nieuport N.28C-1
"Nieuport 28"

Sopwith F-1
"Camel"

Martin MB-2

Martin MB-10

WWII

Stearman PT-13D
"Kaydet"

North American
T-6G "Texan"

Boeing B-17G
"Flying Fortress"

Republic
P-47
"Thunderbolt"

Lockheed
P-38L "Lightning"

North
American B-25B
"Mitchell"

Boeing B-29
"Superfortress"

North
American
P-51D "Mustang"

Northrup
P-61C
"Black Widow"

North American
A-36A "Apache"

Consolidated
B-24D
"Liberator"

Piper L-4A
"Grasshopper"

Curtis P-40
"Warhawk"

Douglas
C-47D "Skytrain"
aka "Gooney
Bird"

Curtiss C- 46
"Commando"

Douglas C-54
"Skymaster"

KOREA/COLD WAR

Bell
P-59 "Aerocomet"

North American
T-28 "Trojan"

Fairchild C-119
"Flying Boxcar"

Fairchild C-123
"Provider"

Douglas C-124
"Globemaster II"

Lockheed C-130
"Hercules"

Boeing
KC-135
"Stratotanker"

Lockheed T-33
"Shooting Star"

North American
F-86 "Sabre"

North American
F-100
"Super Sabre"

McDonnell Douglas F-101 "Voodoo"

Bell X-1

North American B-58 "Hustler"

Lockheed F-104 "Starfighter"

Boeing KC-97 "Stratotanker"

Boeing B-36 "Peacemaker"

Boeing
B-47
"Stratojet"

Lockheed SR-71
"Blackbird"

Convair F-102
"Delta Dagger"

North American
T-39 "Sabreliner"

Lockheed
U-2

Kayman HH-43
"Husky"

Sikorsky HH-53
"Super Jolly"

Vought A-7D
"Corsair II"

Cessna
O-2A
"Skymaster"

North American
OV-10A
"Bronco"

Boeing KB-29

Lockheed EC-121
"Warning Star"

Boeing EC-135
"Looking Glass"

Boeing RC-135V/W
"Rivet Joint"

VIETNAM WAR

Lockheed C-141
"Starlifter"

McDonald-
Douglas C-9
"Nightingale"

McDonnell
Douglas
RF-4
"Phantom II"

McDonnell
Douglas
F-4C
"Phantom II"

General Dynamics FB-111 "Aardvark"

General Dynamics F-111 "Aardvark"

Douglas A-1H "Skyraider"

Fairchild AC-119 Gunship "Shadow"

SPACE & MISSILE SYSTEMS

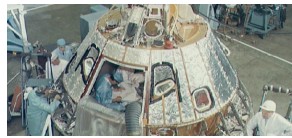
Mercury

Gemini

Thor

Atlas

Apollo



Titan I

Titan IIIC

Minuteman I

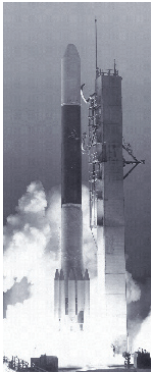
Minuteman II

Atlas ICBM

Bomarc

Clear BMEWS

Delta I



Titan II

Snark

Matador

GLCM dugInch

Skylab

Space Shuttle

International Space Station

Tail Flashes

USAF Aircraft Tail Markings

Compiled Data Provided Courtesy of the Air Force Association

AC F-16
177th FW (ANG)
Atlantic City Arpt NJ

AF C-150, gliders, T-41, UV-18
34th OG,
USAF Academy, CO

AK C-12, C-130H, F-15C/D/E
3d Wing
Elmendorf AFB AK

AK A/OA-10A, F-16C/D
354th FW, Eielson AFB AK

AL F-16C/D
187th FW (ANG)
Dannelly Fld AL

AL KC-135
117th ARW (ANG)
Birmingham Arpt AL

AN C-130H, HC-130N, HH-60G
176th Wing (ANG)
Kulis ANGB AK

AV F-16C/D
31st FW, Aviano AB Italy

AZ F-16A/B/C/D
162d FW (ANG)
Tucson IAP AZ

BB T-38A. U-2
9th RW, Beale AFB CA

BC A/OA-10A
110th FW (ANG)
W.K. Kellogg Arpt MI

BD B-52H, A/OA-10A
917th Wing (AFRC)
Barksdale AFB La.

CA HC-130P. HH-60G
129th-RQW (ANG)
Moffett Fed Afld. Calif.

CB T-1,T-37B,T-38A/C
14th FTW
Columbus AFB MS

CC F-16C/D
27th FW, Cannon AFB NM

CI C-130E
146th AW
Channel Islands ANGS CA

CO F-16C/D
140th Wing, BuckleyAFB CO

CR C-130H
302d AW (AFRC)
Peterson AFB CO

CT A/OA-10A
103d FW (ANG) BradleyArpt CN

DC F-16C/D
113th Wing (ANG)
Andrews AFB MD

DE C-130H
166th AW (ANG)
New Castle Co. Arpt DE

DM A/OA-10A, EC-130E/H
355th Wing
Davis-Monthan AFB AZ

DR HH-60G
305th RQS (AFRC)
Davis-Monthan AFB AZ

DY B-1B
7th BW, Dyess AFB TX

ED Various
412th TW, Edwards AFB CA

EF F-16C/D
147th FW (ANG)
Ellington Fld TX

EG F-15C/D
33rd FW, Eglin AFB FL

EL B-1B
28th BW, Ellsworth AFB SD

EN AT-38B, T-37B, T-38A
80th FTW, Sheppard AFB TX

ET A-1 OA, F-15A/B/C/D/E, F-16A/B/C/D, UH-1N
46th TW, Eglin AFB FL

FE UH-1N
90th SPW, F.E. Warren AFB WY

FF F-15C/D
1stFW, Langley AFB VA

FL HC-130P/N, HH-60G
920th RQG (AFRC)
Patrick AFB FL

FM F-16C/D
482nd FW (AFRC)
Homestead ARB FL

FS F-16A/B
188th FW (ANG)
Fort Smith Arpt AR

FT A/OA-10A
23rd FG, Pope AFB NC

FW F-16C/D
122nd FW (ANG)
Fort Wayne Arpt IN

GA B-1B
116th BW (ANG)
Robins AFB GA

GA E-8C, TE-8A
116th ACW (ANG)
Robins AFB GA

GA C-130H
165th AW (ANG)
Savannah Arpt GA

HA F-16C/D
185th FW (ANG)
Sioux Gateway Arpt IO

HD QF-4
53rd WEG, Holloman AFB NM

HH	C-130H, F-15A/B, KC-135R 154th Wing, Hickam AFB HI
HI	F-16C/D 419th FW (AFRC), Hill AFB UT
HL	F-16C/D 388th FW, Hill AFB UT
HO	F-117A, T-38A 49th FW, Holloman AFB NM
HO	F-4F Luftwaffe RTU Holloman AFB, NM
HT	AT-38B, C-12, F-15A 46th TG, Holloman AFB NM
HV	UH-1N 30th SPW Vandenberg AFB CA
ID	A/OA-10A, C-130E 124th Wing (ANG) Boise Air Term. ID
IL	C-130E 182d AW (ANG) Greater Peoria Arpt IL
IS	HH-60G 85th Group NAS Keflavik Iceland
JZ	F-15A/B 159th FW (ANG) NAS JRB, New Orleans LA
KC	A/OA-10 442d FW (AFRC) Whiteman AFB MO
LA	B-52H 2d BW, Barksdale AFB LA
LF	F-16C/D 56th FW Luke AFB AZ
LI	HC-130P, HH-60G 106th RW (ANG) F.S. Gabreski Arpt NY
LN	F-15C/D/E 48th FW, RAF Lakenheath UK
LR	F-16C/D 944th FW (AFRC) Luke AFB AZ
MA	F-15A/B 102d FW (ANG) Otis ANGB MA
MA	A/OA-10A 104th FW (ANG) Barnes Arpt. MA
MD	A/OA-10A, C-130J 175th Wing (ANG) Martin State Arpt MD
MI	F-16C/D, C-130E 127th Wing (ANG) Selfridge ANGB MI
MI	KC-135E 927th ARW (AFRC) Selfridge ANGB MI
MM	UH-1N 341st SPW Malmstrom AFB MT
MN	C-130H 133d AW (ANG) Minn.-St. Paul Arpt./ARS
MN	F-16A/B 148th FW (ANG) Duluth Arpt MN
MO	F-15C/D/E, F-16CJ, KC-135R 366th FW Mountain Home AFB ID
MT	B-52H 5th BW, Minot AFB ND
MT	UH-1N 91st SPW, Minot AFB ND
MY	HC-130P, HH-60G 347th Rescue Wing Moody AFB GA
MY	AT-38B, T-6A, T-38C 479th FTG (AETC) Moody AFB GA
NM	F-16C/D 150th FW (ANG) Kirtland AFB NM
NO	A/OA-10A 926th FW (AFRC) NAS JRB, New Orleans LA
NV	C-130E 152d AW (ANG) Reno/Tahoe Arpt. NV
NY	F-16C/D 174th FW (ANG) Hancock Fid. NY
OF	Various 55th Wing, Offutt AFB NE
OH	F-16C/D 178th FW (ANG) Springfield-BeckleyArpt OH
OH	C-130H 179th AG (ANG) Mansfield Lahm Arpt OH
OH	F-16C/D 180th FW (ANG) Toledo Exp. Arpt. OH
OK	C-130H 137th AW (ANG) Will Rogers World Arpt. OK
OK	F-16C/D 138th FW (ANG) Tulsa Arpt. OK
OK	E-3B/C.TC-18E 552nd ACW, Tinker AFB OK
OS	A/OA-10A, C-12, F-16C/D 51st FW, Osan AB South Korea
OT	B-1. B-2. B-52, F/A-22, F-15A/C/D/E, F-16C/D,RQ-1A, RQ-4A 85th TES, 53d Wing (ACC) Eglin AFB FL
OT	F/A-22, F-15, F-16A/C 422d TES, 53d Wing Nellis AFB NV
OT	F-117 Del 1. 53d WEG Holloman AFB NM

PC
UH-1N
336th TG, Fairchild AFB WA

PD
HH-60G
939th RW (AFRC)
Portland Arpt OR

PR
C-130E
156th AW (ANG), Luis Munoz Marin Arpt Puerto Rico

RA
T-1A, T-6A, T-37B, T-38A, T-43A
12th FTW
Randolph AFB, Hondo Arpt TX

RI
C-130E
143d AW (ANG)
Quonset State Arpt RI

RS
C-130E
86th AW
Ramstein AB Germany

SA
F-16C/D
149th FW (ANG)
Kelly Field TX

SC
F-16C/D
169th FW (ANG)
McEntire ANGS SC

SD
F-16C/D
114th FW (ANG)
Joe Foss Field SD

SI
F-16C/D
183d FW (ANG)
Capital Arpt. IL

SJ
F-15E
4th FW
Seymour Johnson AFB NC

SL
F-15A/B
131st FW (ANG)
Lambert-St Louis Arpt MO

SP
A/OA-10A, F-16CJ/D
52d FW
Spangdahlem AB Germany

ST
Various
82d TW, Sheppard AFB TX

SW
F-16C/J
20th FW, Shaw AFB SC

TD
QF-4
53d Wing, Tyndall AFB FL

TH
F-16C/D
181st FW (ANG)
Hulman Arpt IN

TX
C-130H
136th AW (ANG)
NAS JRB Ft. Worth TX

TX
F-16C/D
301st FW (AFRC)
NAS JRB Ft Worth TX

TY
F-15C/D, F/A-22
325th FW, Tyndall AFB FL

VA
F-16C/D
192nd FW (ANG)
Richmond IAP VA

VN
T-1A. T-37B, T-38A
71st FTW, Vance AFB OK

WA
A-10, F-15C/D/E. F-16A/B/C/D, HH-60, RQ-1
57th Wing, Nellis AFB NV

WE
E-9A
53d WEG, Tyndall AFB FL

WI
F-16C/D
115th FW (ANG)
Truax Field WI

WM
B-2A, T-38A
509th BW
Whiteman AFB MO

WP
F-16C/D
8th FW
Kunsan AB South Korea

WV
C-130H
130th AW (ANG)
Yeager Arpt. WV

WV
C-130E
167th AW (ANG)
East. W.Va. Arpt. WV

WW
F-16C/D
35th FW, Misawa AB Japan

WY
C-130H
153d AW (ANG)
Cheyenne Arpt. WY

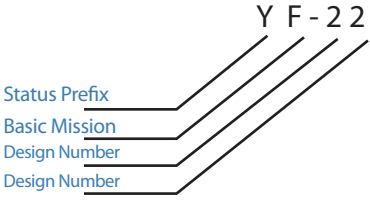
XL
T-1A, T-6A, T-37B, T-38A
47th FTW, Laughlin AFB TX

XP
C-130H
139th AW (ANG)
Rosecrans Arpt MO

YJ
C-21A, C-130E/H, UH-1N
374th AW
Yokota AB Japan

ZZ
E-3B, F-15C/D, KC-135R, HH-60G
18th Wing, Kadena AB Japan

Aerospace Vehicle Mission Design Series (MDS) Designators for Aircraft



STATUS PREFIX	MODIFIED MISSION	BASIC MISSION	VEHICLE TYPE
G- Permanently Grounded	A- Attack	A- Attack	G- Glider
J- Special test (temporary)	C- Cargo/Transport	B- Bomber	H- Helicopter
N- Special test (permanent)	D- Director	C- Cargo/Transport	S- Spaceplane
X- Experimental	E- Special Electronic installation	E- Special Electronic installation	V- VTOL/STOL
Y- Prototype	F- Fighter	F- Fighter	Z- Lighter-than-air
Z- Planning	H- Search/Rescue	O- Observation	
	K- Aerial Refueling	P- Patrol	
	L- Cold Weather	R- Reconnaissance	
	M- Multimission	S- Antisubmarine	
	O- Observation	T- Trainer	
	P- Patrol	U- Utility	
	Q- Drone	X- Research	
	R- Reconnaissance		
	S- Antisubmarine		
	T- Trainer		
	U- Utility		
	V- Staff		
	W- Weather		

Heritage of the Roundele

1906-1916

Used with and without white background circle. In use at the time of the Mexican Border Campaign.

1918-1920

The official American insignia during World War I. It began to be phased out in 1919.

1917, 1921-1941

Introduced prior to the American entry into World War I and officially readopted after the war.

1942-1943

The red center of the 1921-1941 insignia was removed unofficially in December 1941 and officially in May 1942 to avoid confusion with Japanese insignia.

1942-1943

Some aircraft in the European and Mediterranean theaters unofficially incorporated a yellow surround in the British style.

1943

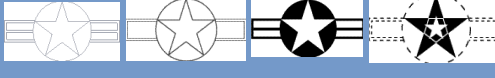
Between 29 June and 14 August, the official national insignia incorporated white sidebars and an overall red surround.

1943-1947

The red surround of the official insignia was quickly changed to a blue surround. During its 4 years of use, this insignia appeared on more aircraft than all its predecessors combined.

1947-Present

With the reorganization of the Defense Department and the creation of the USAF, red bars were added to the official national insignia. A variation of this insignia appears officially without the blue surround on F-15 aircraft.



Low Visibility

Beginning in the late seventies low visibility markings have been introduced officially and unofficially on the aircraft of the USAF and other services. The grey insignia on the far left is the only insignia used on operational F-16s. It is followed by a more standard low visibility mark, used on A-10s and other aircraft. The stencil marks are becoming increasingly common on Air Mobility Command, Air Force Reserve and Air National Guard aircraft.

Data compiled by Mr. Bill Yenne

Current Weapons Systems

F-15 Eagle

Air Superiority Fighter
F-15A-D is a dual engine, all weather, extremely maneuverable fighter designed to gain and maintain air superiority.

F-15E Strike Eagle

Dual Role Fighter
F-15E is a dual engine, air-to-ground, air-to-air, all weather, fighter designed for close air support, strategic attack, and interdiction roles.

F-16 Fighting Falcon

Multi-role Fighter
F-16 A-D is a single engine multi-role tactical fighter with full air-to-air and air-to-ground combat capabilities.

F/A-22 Raptor

F/A-22 is a low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance allowing supersonic cruise without afterburner.

F-117 Nighthawk

F-117 is a low observable subsonic aircraft capable of deep penetration into integrated air defense systems (IADS) to engage heavily defended high value targets.

A-10 Thunderbolt II

A/OA-10 is a close air support (CAS) platform used to support troops in contact with enemy forces. The A/OA-10 performs secondary roles of Air Interdiction, Airborne Forward Air Control (FAC), and Combat Search and Rescue (CSAR) and Special Operations (SPECOPs) Support.

AC-130 Spectre Gunship

The AC-130H Spectre and AC-130U gunships' primary missions are close air support, air interdiction, and armed reconnaissance. Other missions include perimeter and point defense, escort, landing, drop and extraction zone support, forward air control, Combat Search and Rescue (CSAR).

B-1 Lancer

The B-1B is a long-range, all-weather, deepstrike, day-night, high speed, large payload Global Attack bomber.

B-2 Spirit

Stealth, multi-role bomber. The B-2 is able to deliver both nuclear and conventional munitions, and is capable of attacking an enemy's war-making potential, in the first critical hours of a conflict. It is the Air Force's only all-weather hard/deeply buried conventional strike capability.

B-52 Stratofortress

The B-52 is the center-piece of the bomber fleet, supporting both nuclear and conventional operations plans. It is the only long range bomber capable of employing the long range Advanced Cruise Missile (ACM), Air Launched Cruise Missile (ALCM), and Conventional Air Launched Cruise Missile (CALCM); the Harpoon anti-ship missile; and the HAVE NAP precision guided missile.

C-17 Globemaster

A intertheater and intratheater, refuelable, wide-body aircraft capable of airlifting outsized and oversized payloads over intercontinental ranges for direct delivery.

C-5 Galaxy

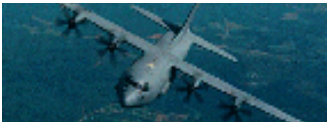
The C-5 is used for strategic intertheater delivery of outsized and oversized cargo and passengers.

C-21 Learjet

A cargo and passenger airlift aircraft employed for short ranges and into short fields. This aircraft can be configured to transport litters during medical evacuations.

VC-25 Air Force One

Air Force One provides worldwide transportation for the President of the United States.



C-130J

C-130J provides immediate movement of combat troops and supplies within theaters of operation.

C-130E/H
Hercules

The C-130E/H provides rapid intertheater transportation of personnel or cargo for delivery day or night by parachute or landings. Adverse Weather Aerial Delivery System (AWADS) -equipped aircraft have the additional capability of performing airdrops without external assistance in adverse weather.

EC-130E/J
Command Solo

Commando Solo aircraft conduct psychological operations and civil affairs broadcast in the AM, FM, HG, TV, and military communications bands.

HC-130P/N
King

The HC-130P/N is the Combat Search and Rescue (CSAR) configured extended-range version of the C-130 Hercules. It provides in-flight refueling to rescue and Special Operations helicopters and performs tactical delivery of Pararescue specialists in permissive or hostile environments.

E-3 Sentry AWACS

The E-3 is a deployable airborne command and control (C2) battle management (BM) platform employed at the tactical level of war. Airborne Warning and Control System (AWACS) provides all altitude surveillance, warning, and battle management for worldwide air combat operations. It directs, coordinates, and controls joint and combined forces and operations.

E-4 NAOC

The National Airborne Operations Center is designed as a highly survivable node of the National Military Command System (NMCS). The E-4 provides SECDEF OCONUS C2 mission support and provides support to the Federal Emergency Management Agency (FEMA) during crisis response.

E-8 Joint STARS

Joint Surveillance and Target Attack Radar System (Joint STARS) is a joint Army/Air Force program designed to enhance battle management by providing air/land component commanders with near real-time wide-area surveillance and targeting information on moving and stationary ground targets, slow-moving rotary and fixed wing aircraft, rotating antennas, and Theater Missile Defense targets of interest.

HH-60G
Pave Hawk

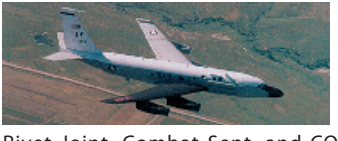
The HH-60G is the primary operational Combat Search and Rescue (CSAR) aircraft. It is rapidly deployable and has day/night, marginal weather combat capability employed for CSAR, NEO, counter-drug, disaster relief, civil search and rescue, and Space Shuttle support operations.

KC-10
Extender

The KC-10 provides global in-flight refueling and airlift support for deployment, employment, redeployment, and joint/combined special operations.

KC-135E/R
Stratotanker

The KC-135 fleet principally provides global refueling to Air Force, sister service, and allied aircraft. The KC-135 is also used to conduct airlift missions on a limited basis.



RC-135
S/U/V/W

Rivet Joint, Combat Sent, and COBRA BALL are reconnaissance and surveillance platforms employed all over the world to increase battlespace awareness.

MC-130H Combat Talon

The MC-130H Combat Talon II provides global, day, night, and adverse weather capability to airdrop and airland personnel and equipment in support of U.S. and allied special operations forces.

MC-130P Combat Shadow

The Combat Shadow flies clandestine or low visibility, low-level missions into politically sensitive or hostile territory to provide air refueling for special operations helicopters. It can also airdrop small special operations teams, small resupply bundles, and zodiac and combat rubber raiding craft, as well as night vision goggle operations.

MH-53J/M Pave Low III/IV

Pave Low helicopters provide covert low-level, long-range, undetected penetration into denied areas, day or night in adverse weather for infiltration, exfiltration, and resupply of Special Forces.

T-1 Jayhawk

The T-1A is an advanced trainer for student pilots designated for duty flying airlift, bomber, or tanker aircraft and student navigators who will fly airlift or tanker aircraft.

T-6A Texan II

The T-6A is an entry-level flight and ground training aircraft for future USAF and US Navy pilots. It replaces the USAF T-37B and US Navy T-34C trainers.

T-37 Tweet

The T-37 is currently the primary entry-level trainer in undergraduate pilot training, undergraduate navigator training, and tactical navigator training.

T-38A Talon

The T-38 is used by advanced undergraduate pilot training, Air Combat Command, Air Mobility Command, and the National Aeronautics and Space Administration also use T-38 variants in their training programs.

T-43A

The T-43A is a basic flight trainer for undergraduate navigator training students.

U-2S Dragon Lady

The U-2 conducts high-altitude, deep-look, multi-INT reconnaissance and surveillance utilizing state-of-the-art IMINT and SIGINT sensors to provide near real-time worldwide battlespace awareness.

UH-1N Iroquois

The UH-1N provides Special Air Mission support for the National Capital Region, VIP airlift, airlift of emergency security and disaster response forces, nuclear weapons security and surveillance, search and rescue, and missile launch support.

UV-18 Twin Otter

The UV-18 is used to support parachute and airmanship training at the United States Air Force Academy.

RQ/MQ-1A Predator

The Predator is a long endurance unmanned aerial vehicle (UAV) providing persistent airborne reconnaissance. The MQ version may be armed with Hellfire missiles.

RQ-4 Global Hawk

Global Hawk provides continuous, all-weather, day/night, wide area surveillance to support the tactical warfighter.

SPACE AND MISSILE SYSTEMS

GPS Global Positioning System

A constellation of 24 satellites provides highly accurate time and three dimensional position and velocity information to an unlimited number of users anywhere on or above the surface of the Earth, in any weather.

GBS Global Broadcast System

Provides efficient global high data rate broadcast capability between many distributed information sources simultaneously to warfighters using small, inexpensive terminals.

Milstar

A constellation of four satellites that provide the President, Secretary of Defense, and Combatant Commanders with assured, worldwide command and control (C2) for tactical and strategic forces.

DSCS III

This constellation of satellites provide worldwide, responsive wideband and anti-jam satellite communications supporting strategic and tactical C3I requirements.

DSP

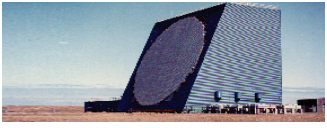
The Defense Support Program (DSP) is a space based infrared satellite system providing global coverage and warning of ballistic missiles launches, nuclear detonations, and other events.

PAVE PAWS

PAVE PAWS: Detects, tracks and warns of incoming sea-launched or intercontinental ballistic launched.

BMEWS

Ballistic Missile Early Warning System: Detects, tracks and warns of ballistic missile launches, launches of new space systems, and provides data on foreign ballistic missile events.



PARCS

Perimeter Attack Radar Characterization System: Provides tactical warning and attack characterization of sea-launched and intercontinental ballistic missile attacks against the continental United States. Supports the space surveillance network by providing space surveillance data, tracking, reporting and space object identification.

AFSCN

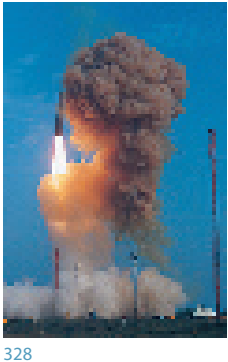
Air Force Satellite Control Network: A worldwide network of satellite control stations which uses satellite and terrestrial communication links providing connectivity to over 145 DoD, National, Allied and Civil satellites.

DMSP

Defense Meteorological Satellites Program (DMSP) provides an enduring and survivable capability, through all levels of conflict, to collect and disseminate global visible and infrared cloud data and other specialized meteorological, oceanographic, and space environment data required to support worldwide DoD operations and high-priority national programs.

EELV

The Boeing Delta IV and Lockheed Martin Atlas V Evolved Expendable Launch Vehicle (EELVs) provide the Air Force and the nation rapid and reliable access to space with a standardized launch capability.



LGM-30 Minuteman

The Minuteman III is an inertially guided, intercontinental ballistic missile. Minuteman III is capable of delivering up to 3 multiple independently targetable reentry vehicles (MIRVs). It provides a highly survivable, quick-reaction component to the nuclear Triad.

LGM-118A Peacekeeper

Peacekeeper is a strategic weapon system using a ballistic missile of intercontinental range, capable of delivering up to 10independentlytargetable re-entry vehicles with very hard target kill capability.

SELECT AIR WEAPONS

AIM-7 Sparrow

The AIM-7 is a supersonic, medium range, semi-active radar-guided air-to-air missile with a high explosive warhead. The AIM-7 is an all-weather, all-altitude, and all-aspect offensive missile carried by fighter aircraft.

AIM-9 Sidewinder

The AIM-9M is a fighter-borne supersonic, short range, passive infrared-guided air-to-air missile with a high explosive warhead.

AIM-120
AMRAAM

The AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM) is a supersonic, medium range, active radar guided air-to-air missile with a high explosive warhead.

AGM-65
Maverick

The AGM 65 is an air to surface launch and leave tactical missile. Electro-optical or infrared (IR) guided these standoff missiles are used in close air support (CAS), interdiction, and enemy defense suppression missions.

AGM-86
ALCM
Air-Launched Cruise Missile

The Air Launched Cruise Missile is a subsonic, highly accurate, long range, air-to-surface strategic nuclear missile designed to evade air- and ground-based defenses in order to strike targets at any location within any enemy's territory.

AGM-86C
CALCM
Conventional Air-Launched Cruise Missile

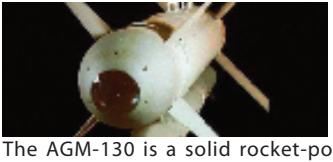
CALCM provides the warfighter with an adverse weather, day or night, air-to-surface, accurate, long-range stand off strike capability against deep and hardened targets.

AGM-88
HARM
High Speed Anti-Radiation Missile

The AGM-88 is an air-to-surface tactical antiradiation missile used to destroy or suppress enemy radar threats at standoff range homing in on source radar emissions.

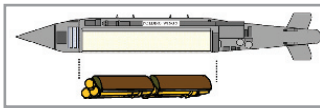
AGM-129A
Advanced Cruise Missile

The AGM-129A is a subsonic, low-observable air-to-surface strategic nuclear missile with significant range and accuracy.



AGM-130

The AGM-130 is a solid rocket-powered GBU-15 equipped with autonomous INS/GPS mid-course guidance for adverse weather capability and electro-optical or infrared terminal guidance to standoff strike heavily defended targets.



AGM-154 JSOW

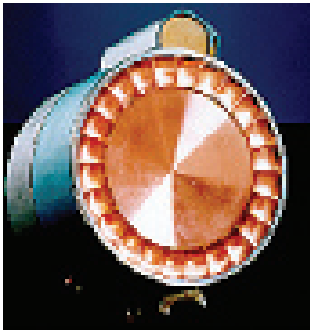
Joint Standoff Weapon (JSOW) is the Air Force and Navy built long range, INS/GPS guided, standoff, air-to-ground weapon designed to attack a variety of soft and armored area targets beyond the range of point defenses.

CBU-87 Combined Effects Munition

The CBU-87 is an area munition, dispensing bomblets in a rectangular pattern, used against armor, materiel, and personnel targets. It is employed by Air Force and Navy fighters and incorporates wind corrected muntions dispensers (WCMD).

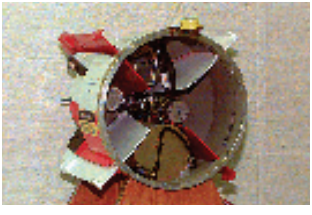
CBU-89 Gator

The CBU-89 (mixed system) disperses 94 mines: 72 anti-tank and 22 anti-personnel mines. The mines are dispensed from Air Force and Navy aircraft in a rectangular pattern and have three selectable self destruct times. INS guided wind corrected munition dispenser (WCMD) enhances the weapons accuracy.



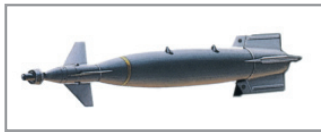
CBU-97/B

The weapon achieves multiple kills per pass against moving and stationary land targets. The CBU-97/B is employed by fighters and bombers primarily against tanks, Armored Personnel Carriers (APCs), and propelled targets.



WCMD

Wind Corrected Munition Dispenser
WCMD provides accurate dispenser weapon capability when delivered from medium to high altitudes. WCMD kits are used on inventory cluster weapons (CEM, Gator, Sensor Fused Weapon (SFW).



GBU-10

The Glide Bomb Unit (GBU) series are laser-guided, air-to-ground glide bombs used for precision targeting of soft and hardened targets. Guidance systems are Paveway II and Paveway III.

GBU-15

The GBU-15 is unpowered and employs elecro-optical or infrared terminal seeker for a standoff attack of high value ground targets.

GBU-31 JDAM

Joint Direct Attack Munition (JDAM) is a joint Air Force and Navy system used to upgrade the existing inventory of general purpose bombs by integrating them with a GPS/INS guidance kit to provide accurate adverse weather delivery from medium altitudes.

Weapons Systems Under Development

Airborne Laser ABL

Airborne component of the Ballistic Missile Defense System's Boost Phase Defense Segment that will acquire, track and kill missiles in their boost phase.

JSF Joint Strike Fighter

F-35 Joint Strike Fighter: Multi-role fighter. The USAF Conventional Takeoff and Landing (CTOL) variant is a stealthy, multi-role fighter with air-to-air and air-to-ground capabilities that will replace the F-16 and A-10 and complement the F/A-22.

AGM-158A JASSM

Joint Air-to-Surface Standoff Missile (JASSM) is an autonomous, long range standoff cruise missile; compatible with Air Force and Navy fighter and bomber aircraft. The AGM-158A is designed to strike a variety of high value targets.

GBU-39

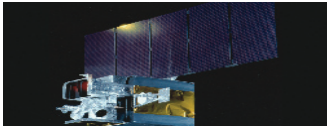
The GBU-39 Small Diameter Bomb is a 250-lb. class GPS-guided glide bomb that enables attack in all weather from outside point defenses with reduced collateral damage.

WGS

Wideband Gapfiller Satellite is the follow-on system to DSCS III. WGS will provide wideband satellite communications to the joint community in two frequency bands, providing 12 times as much bandwidth as DSCS III.

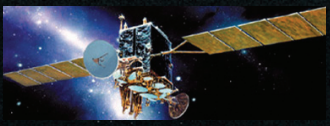
AIM-9X

The AIM-9X "Sidewinder" is the next generation, launch and leave, short-range air-to-air missile being designed to counter the current threat in the short-range arena. The AIM-9X, a major modification to the current AIM-9M, provides enhanced infrared countermeasure (IRCM) resistance, improved acquisition range, high off-boresight capability, enhanced background discrimination, and high maneuverability.



SBIRS

Space Based Infared System (SBIRS) consolidates the national and DoD's infrared detection systems into a single overarching architecture that fulfills the nation's security needs in the areas of missile warning, missile defense, technical intelligence, and battlespace characterization.



AEHF

Advanced EHF is the follow-on system to Milstar. AEHF will provide secure satellite communications for the joint community and allies, providing anti-jam protection and nuclear protection

AF Vocabulary

A

ABORT: (v) to discontinue or abandon a takeoff, mission or action; (n.) an abandoned take-off (i.e. ground abort) or mission.

ADMINISTRATIVE CONTROL: (n) direction or exercise of authority over subordinate or other organizations in respect to administration and support, including organization of Service forces, control of resources and equipment, personnel management, unit logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinate or other organizations. Also called ADCON. JT Pub 1-02.

AGILE COMBAT SUPPORT (ACS): (n) an Air Force distinctive capability that provides a base support system that is highly mobile, flexible, and fully integrated with air and space operations. Contingency Response Groups (CRG) and Expeditionary Medical System (EMEDS) are examples of ACS capability.

AIR AND SPACE EXPEDITIONARY FORCE (AEF) [formerly used and obsolete: Aerospace Expeditionary Force] (n) an organizational structure composed of force packages of capabilities that provides warfighting commanders with rapid and responsive air and space power. These force packages are tailored to meet specific needs across the spectrum of response options and will deploy within an Air and Space Expeditionary Task Force as air expeditionary wings (AEWs), groups (AEGs), or squadrons (AESs).

AIR and SPACE POWER: (n) the use of lethal and non-lethal means by air and space forces to achieve strategic, operational, and tactical objectives.

AIR and SPACE SUPERIORITY: (n) that degree of dominance in the air and space battle of one force over another which permits the conducts of operations by the former and its related land, sea, air and space forces at a given time and place without prohibitive interference by the opposing force.

AIR CAMPAIGN: (n) a connected series of operations conducted by air forces to achieve joint force objectives within a given time and area.

AIRCRAFT COMMANDER : (n) the aircrew member designated by competent authority as being in command of an aircraft and responsible for its safe operation and accomplishment of the assigned mission. Also called AC.

AIR INTERDICTION: (n) air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. [Includes both lethal and nonlethal systems, is employed to destroy, disrupt, divert, or delay the enemy's surface military potential before it can effectively engage friendly forces, or otherwise achieve its objectives.]

AIRMAN (n) [always capital A]: any person who understands and appreciates the full range of air and space power capabilities and can employ or support some aspect of air and space power capabilities. As one Airman put it, an Airman

is "one who exercises and believes in the fundamental truths regarding aerospace power. Not all who wear the blue suit are Airmen; not all Airmen wear the blue suit."

AIRPOWER: (n) [always one word] the fundamental ability to use aircraft to create military and political effects through the air and space.

AIRSPEED: (n) the speed of an aircraft relative to its surrounding air mass. The unqualified term "airspeed" can mean any one of the following: a. calibrated airspeed—indicated airspeed corrected for instrument installation error; b. equivalent airspeed—calibrated airspeed corrected for compressibility error; c. indicated airspeed—the airspeed shown by an airspeed indicator; d. true airspeed—equivalent airspeed corrected for error due to air density (altitude and temperature).

AIR SUPERIORITY: (n) that degree of dominance in the air battle of one force over another that permits the conduct of operations by the former and its related land, sea, and air forces at a given time and place without prohibitive interference by the opposing force.

AIR SUPREMACY: (n) that degree of air superiority wherein the opposing air force is incapable of effective interference.

AIR TASKING ORDER: (n) a method used to task and disseminate to components, subordinate units, and command and control agencies projected sorties, capabilities and/or forces to targets and specific missions. Normally provides specific instructions to include call signs, targets, controlling agencies, etc., as well as general instructions. Also called ATO.

AIRWAY: (n) a control area or portion thereof established in the form of a corridor marked with radio navigational aids.

ALTITUDE: (n) the vertical distance of a level, a point or an object considered as a point, measured from mean sea level.

AOC: (n) air and space operations center.

APOGEE (n): the point of greatest distance from Earth (or the Moon, a planet, etc.) achieved by a body in elliptical orbit. Usually expressed as distance from Earth's surface.

AREA OF OPERATIONS: (n) an operational area defined by the joint force commander for land and naval forces. Areas of operation do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. Also called AO.

AREA OF RESPONSIBILITY: (n) the geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations. Also called AOR.

ASBC: (n) the Air and Space Basic Course

B

BANDIT: (n) an aircraft identified as an enemy in accordance with theater identification criteria

BARE BASE: (n) a base having minimum essential facilities to house, sustain, and support operations to include, if required, a stabilized runway, taxiways, and aircraft parking areas. A bare base must have a source of water that can be made

potable. Other requirements to operate under bare base conditions form a necessary part of the force package deployed to the bare base.

BATTLE DAMAGE ASSESSMENT: (n) the timely and accurate estimate of damage resulting from the application of military force, either lethal or nonlethal, against a predetermined objective.

BATTLESPACE: (n) the environment, factors, and conditions that must be understood to successfully apply combat power, protect the force, or complete the mission. This includes the air, land, sea, space, and the included enemy and friendly forces; facilities; weather; terrain; the electromagnetic spectrum; and the information environment within the operational areas and areas of interest.

BOGEY: (n) an unidentified flying object or radar target.

BRAT: (n) a son or daughter of a military family.

BREAK: (v or n) steep (usually aggressive) turn either from a formation or in a traffic pattern.

BREVITY CODE: (n) a code which provides no security but which has as its sole purpose the shortening of messages rather than the concealment of their content.

C

CALL SIGN: (n) any combination of characters or pronounceable words, which identifies a communication facility, a command, an authority, an activity, or a unit; used primarily for establishing

and maintaining communications. Informal: an individual's nickname given by their unit and approved by the unit commander. Also called CS.

CANNIBALIZE: (n) to remove serviceable parts from one item of equipment in order to install them on another item of equipment.

CAOC: (n) combined air and space operations center.

CENTERS OF GRAVITY: (n) those characteristics, capabilities, or sources of power from which a military force derives its freedom of action, physical strength, or will to fight. Also called COG.

CFACC: (n) the combined force air and space component commander.

CLEARED HOT: (n) authorization to engage a target. Also permission to complete an action or mission.

COMAFFOR (n): Commander, Air Force Forces. The senior Air Force warfighter in command of Air Force forces presented to a Joint Force Commander, either as a permanently assigned force or attached as an AETF. The COMAFFOR is the senior Air Force officer directly subordinate to the Joint Force Commander. As the COMAFFOR, he/she exercises Operational Control (OPCON) over assigned and attached Air Force forces (if so delegated by the JFC) and Administrative Control (ADCON) over assigned Air Force forces and specified elements of ADCON over attached Air Force forces.

CONTRAILS: (n) condensation trails, a visible trail of water droplets or ice crystals forced in the wake of an aircraft flying at high altitude.

CORE VALUES: (n) the Air Force core values are values for service, values for life, and must be reflected in everything that we do. The core values are integrity first, service before self, and excellence in all we do.

D

DACT: (n) Dissimilar Air Combat Training.

DCA: (n) defensive counterair.

DECISIVE: (n) having the power or quality to bring about a conclusion. It may refer to the deciding factor among multiple factors.

DEFENSIVE COUNTER SPACE: Operations to preserve US/friendly ability to exploit space to its advantage via active and passive actions to protect friendly space-related capabilities from adversary attack or interference.

DIRSPACEFOR: The DIRSPACEFOR serves as the senior space advisory to the COMAFFOR or COMAFFOR/JFACC. The DIRSPACEFOR conducts coordination, integration, and staffing activities to tailor space support for the COMAFFOR/JFACC. The DIRSPACEFOR is a senior Air Force officer with space expertise and theater familiarity, nominated by AFSPC/CC and appointed by the theater COMAFFOR. The DIRSPACEFOR is attached to the COMAFFOR, and should be part of the COMAFFOR's or COMAFFOR/JFACC/s special staff.

E

EFFECTS: (n) physical and/or psychological outcomes, events, or consequences that result from a specific military action. They may occur at all levels of war and can produce follow-on outcomes.

EFFECTS-BASED OPERATIONS: (n) military actions, such as operations, targeting, or strategy, that are designed to produce distinctive and desired results. Also called EBO.

F

FORCE PROTECTION: (n) actions taken to prevent or mitigate hostile actions against DoD personnel (including family members), resources, facilities, and critical information. These actions conserve the force's fighting potential so it can be applied at the decisive time and place and incorporate the coordinated and synchronized offensive and defensive measures to enable the effective employment of the Joint Force while degrading the opportunities of the enemy. Force protection does not include actions to defeat the enemy or protect against accidents, weather, or disease.

I

INTEGRATION: (n) 1. in force protection, the synchronized transfer of units into an operational commander's force prior to mission execution.

2. the arrangement of military forces and their actions to create a force that operates by engaging as a whole.

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR): (n) integrated capabilities to collect, process, exploit and disseminate accurate and timely information that provides the battlespace awareness necessary to successfully plan and conduct operations.

INTERTHEATER AIRLIFT: (n) [Formerly called strategic airlift]. The common-user airlift linking theaters to the continental United States and to other theaters as well as the airlift within the continental United States.

INTRATHEATER AIRLIFT: (n) [Formerly called theater airlift] airlift conducted within a theater. Assets assigned to a geographic combatant commander or attached to a subordinate joint force commander normally conduct intratheater airlift operations. Intratheater airlift provides air movement and delivery of personnel and equipment directly into objective areas through air landing, airdrop, extraction, or other delivery techniques as well as the air logistic support of all theater forces, including those engaged in combat operations, to meet specific theater objectives and requirements. During large-scale operations, US Transportation Command assets may be tasked to augment intratheater airlift operations, and may be temporarily attached to a joint force commander.

J

JOINT FORCE AIR COMPONENT COMMANDER: (n) the joint force air component commander derives authority to execute air operations from the joint force commander who has the authority to exercise operational control, assign missions, direct coordination among subordinate commanders, redirect and organize forces to ensure unity of effort in the accomplishment of the overall mission. Also known as the JFACC.

O

OBJECTIVE: (n) 1. the clearly defined, decisive, and attainable goals toward which every military operation should be directed. 2. the specific target of the action taken (for example, a definite terrain feature, the seizure or holding of which is essential to the commander's plan, or, an enemy force or capability without regard to terrain features). A specific statement of a desired end.

OFFENSIVE COUNTER SPACE: Operations to preclude an adversary from exploiting space to their advantage.

OODA Loop: (n) a theory developed by Col John Boyd (USAF, Ret.) contending that one can depict all rational human behavior, individual and organizational, as a continual cycling through four distinct tasks: observation, orientation, decision, and action.

OPERATIONAL ART: (n) the employment of military forces to attain strategic and/or operational objectives through the design, organization, integration, and conduct of strategies, campaigns, major operations, and battles. Operational art translates the joint force commander's strategy into operational design and, ultimately, tactical action, by integrating the key activities at all levels of war.

OPERATIONAL CONTROL: (n) command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority) and may be delegated within the command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Operational control is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces

and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions; it does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit. JT Pub 1-02.

OPERATIONS SECURITY: (n) a process of identifying critical information and subsequently analyzing friendly actions attendant to military operations and other activities to: a. identify those actions that can be observed by adversary intelligence systems; b. determine indicators that hostile intelligence systems might obtain that could be interpreted or pieced together to derive critical information in time to be useful to adversaries; and c. select and execute measures that eliminate or reduce to an acceptable level the vulnerabilities of friendly actions to adversary exploitation. Also called OPSEC.

ORDER OF BATTLE: (n) the identification, strength, command structure, and disposition of the personnel, units, and equipment of any military force. Also called OB or OOB.

P

PARALLEL OPERATIONS: (n) describes the idea that air and space operations are most effective when they create effects that help achieve different levels of objectives at the same time. The notion of simultaneous attack is imbedded in the idea of parallel operations.

PERIGEE: (n) the point of minimum altitude above Earth (or the Moon, a planet, etc.) maintained by a body in elliptical orbit.

POLICY: (n) an official statement of intentions. It is, for the Air Force, directive in nature. Policy is the answer to the question, "What do we want to do?" Policy primarily outlines broad goals and may articulate certain procedures or objectives. Policy is not doctrine.

S

SORTIE: (n) an operational flight by one aircraft.

STRATEGIC ATTACK: (n) offensive action conducted by command authorities aimed at generating effects that most directly achieve our national security objectives by affecting an adversary's leadership, conflict sustaining resources, and/or strategy.

SUPPORTED COMMANDER: (n) 1. the commander having primary responsibility for all aspects of a task assigned by the Joint Strategic Capabilities Plan or other joint operation planning authority. In the context of joint operation planning, this term refers to the commander who prepares operation plans or operation orders in response to requirements of the Chairman of the Joint Chiefs of Staff. 2. in the context of a support command relationship, the commander who receives assistance from another commander's force or capabilities, and who is responsible for ensuring that the supporting commander understands the assistance required. JT Pub 1-02.

SUPPORTING COMMANDER: (n) 1. a commander who provides augmentation forces or other support to a supported commander or who develops a supporting plan. Includes the designated combatant commands and Defense agencies as appropriate. 2. in the context of a support command relationship, the commander who aids, protects, complements, or sustains another commander's force, and who is responsible for providing the assistance required by the supported commander. JT Pub 1-02.

SYNCHRONIZATION: (n) 1. the arrangement of military actions in time, space, and purpose to produce maximum relative combat power at a decisive place and time. 2. in the intelligence context, application of intelligence sources and methods in concert with the operation plan.

SYNERGY: (n) the principle that different capabilities in combination create more powerful effects—exponential, not linear growth—than when used by themselves. Synergy from air and space power capabilities have the potential to create secondary, tertiary, and succeeding effects—often described as "cascading" effects. Each one of our core competencies results from the synergistic nature of air and space power.

T

TACTICAL CONTROL: (n) command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish

missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised, at any level at or below the level of combatant command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Tactical control provides sufficient authority for controlling and directing the application of force or tactical use of combat support assets within the assigned mission or task. Also called TACON. JT Pub 1-02.

TARGET: (n) 1. an area, complex, installation, force, equipment, capability, function, or behavior identified for possible action to support the commander's objectives, guidance, and intent. Targets fall into two general categories: planned and immediate. 2. in intelligence usage, a country, area, installation, agency, or person against which intelligence operations are directed. 3. an area designated and numbered for future firing. 4. in gunfire support usage, an impact burst that hits the target. Also called TGT.

TASK: (n or v) a discrete event or action, not specific to a single unit, weapon system, or individual, that enables a mission or function to be accomplished by individuals or organizations. The act of assigning responsibility to accomplish a task to an individual or unit.

TWO-PERSON CONCEPT: (n) prohibition of access by an individual to nuclear weapons and certain designated components without the presence at all times of at least two authorized persons, each capable of detecting an incorrect act or unauthorized procedure with respect to the task to be performed.

U

UNITY OF COMMAND: (n) the principle and practice of making a single person legally and morally responsible for a particular military activity or organization. In practice, unity of command helps ensure coherent, orchestrated purpose and action. The principle of unity of command, which puts all aerospace forces under a single airman, is the principle that allows aerospace forces to mass effects at the strategic and operational levels.

Phonetic Alphabet

A.....	Alpha	O	Oscar
B.....	Bravo	P.....	Papa
C.....	Charlie	Q	Quebec
D	Delta		(Kay-beck)
E	Echo	R.....	Romeo
F	Foxtrot	S	Sierra
G	Golf	T.....	Tango
H	Hotel	U	Uniform
I	India	V.....	Victor
J.....	Juliet	W	Whiskey
K.....	Kilo	X.....	X-ray
L	Lima	Y.....	Yankee
M.....	Mike	Z.....	Zulu
N	November		

I Pledge Allegiance

to the flag of the

United States of

America

and to the Republic

for which it stands,

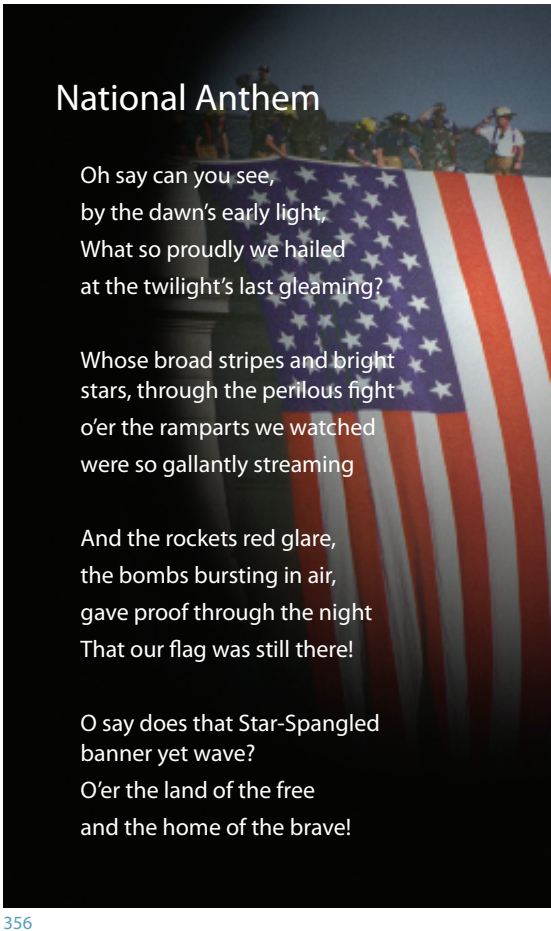
one Nation

under God,

indivisible, with

liberty and justice

for all.



National Anthem

Oh say can you see,
by the dawn's early light,
What so proudly we hailed
at the twilight's last gleaming?

Whose broad stripes and bright
stars, through the perilous fight
o'er the ramparts we watched
were so gallantly streaming

And the rockets red glare,
the bombs bursting in air,
gave proof through the night
That our flag was still there!

O say does that Star-Spangled
banner yet wave?
O'er the land of the free
and the home of the brave!

The US Air Force Hymn

Music by Henry Baker · Lyrics by Mary Hamilton

Lord, guard and guide the men who fly
Through the great spaces of the sky;
Be with them traversing the air
In darkening storms or sunshine fair

Thou who dost keep with tender might
The balanced birds in all their flight
Thou of the tempered winds be near
That, having thee, they know no fear

Control their minds with instinct fit
What time adventuring, they quit
The firm security of land;
Grant steadfast eye and skillful hand

Aloft in solitudes of space
Uphold them with Thy saving grace.
O God, protect the men who fly
Thru lonely ways beneath the sky.

The Air Force Song

Captain Robert Crawford

Off we go into the wild blue yonder,
Climbing high into the sun
Here they come zooming to meet our thunder
At'm boys, giv'r the gun!
Down we dive spouting our flame from under
Off with one helluva roar!
We live in fame or go down in flame
Hey! Nothing'll stop the U.S. Air Force!

•

Minds of men fashioned a crate of thunder
Sent it high into the blue;
Hands of men blasted the world asunder,
How they lived God only knew!
Souls of men dreaming of skies to conquer
Gave us wings, ever to soar.
With Scouts before and bombers galore,
Nothing can stop the U.S. Air Force!

•

Here's a toast to the host of those who
Love the vastness of the sky,
To a friend we send the message of his
Brother men who fly.
We drink to those who gave their all of old
Then down we roar to score the rainbow's
Pot of gold.

A toast to the host of the men we boast
The U.S. Air Force!
Off we go into the wild sky yonder
Keep the wings level and true
If you live to be a gray-haired wonder
Keep the nose out of the blue
Flying men, guarding our nations's borders
We'll be there, followed by more
In echelon, we'll carry on
Nothing can stop the US Air Force!

History of the Air Force Song

The only official history of the Air Force Song can be found in a copy of a script which was used on radio station WRC broadcast on 23 Feb 1944. Captain Alf Heiburg, leader of the Army Air Corps Band, interviewed Captain Robert Crawford, composer of the "Army Air Corps Song," during this broadcast. Captain Crawford related the story, retold here:

In 1939, when he was a civilian pilot, Robert Crawford was asked by a friend to enter a song contest. While flying his plane to Philadelphia, he composed a simple tune. The next day he wrote lyrics that, when combined with the tune, became what was known as the "Army Air Corps Song." The United States Army Band made the first recordings of the song in 1939. It was later renamed the Army Air Forces Song, and eventually the Air Force Song.

HIGH FLIGHT

by Royal Canadian Pilot Officer
John Gillespie Magee, Jr.

Oh, I have slipped the surly bonds of earth
And danced the skies on
laughter-silvered wings;
Sunward I've climbed, and joined
the tumbling mirth of sun-split clouds
and done a hundred things
You have not dreamed of —
wheeled and soared and swung
High in the sunlit silence.
Hov'ring there,
I've chased the shouting wind along, and flung
My eager craft through footless halls of air.
Up, up the long, delirious, burning blue
I've topped the windswept heights
with easy grace
Where never lark, or even eagle flew.
And, while with silent, lifting mind I've trod
The high untrespassed sanctity of space,
Put out my hand, and touched the face
of God.