

AIR FORCE HANDBOOK  109th Congress



# Report Documentation Page

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## Department of the Air Force

Washington, DC



The United States Air Force is the premier air and space force with the ability to reach across the spectrum of military and humanitarian operations. The impact of the Air Force on war operations in Iraq and Afghanistan and its actions in the service of humanitarian assistance is without equal.

The ongoing transformation of the force and the development and refining of operational and organizational processes and strategies has amplified the ability to respond to unpredictable situations. By leveraging technology to integrate air and space capabilities the Air Force gains an asymmetric advantage for the nation. In the future the Air Force will continue to prepare for emerging threats as well as such the transformational envelope.

As a resource for the Congress, the handbook presents a convenient format while outlining a selection of major priorities.



John P. Jumper  
General, USAF, Chief of Staff

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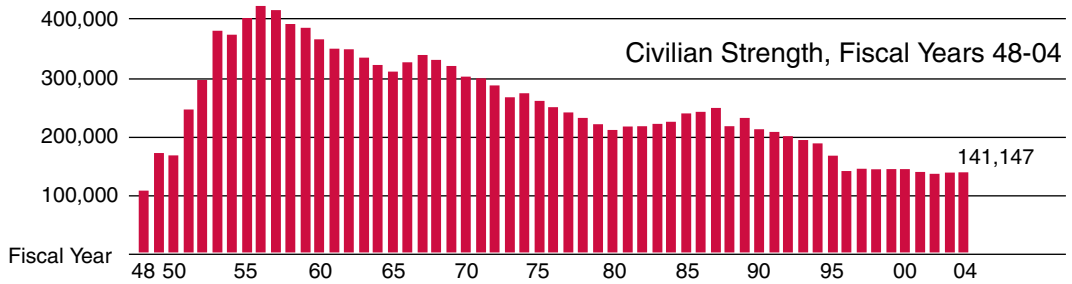
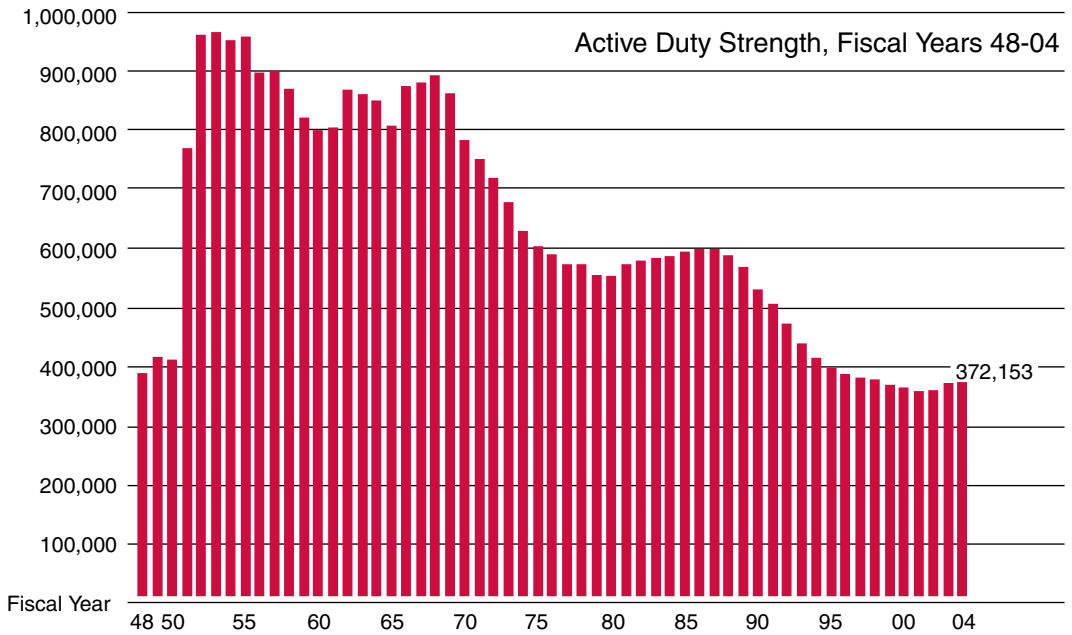
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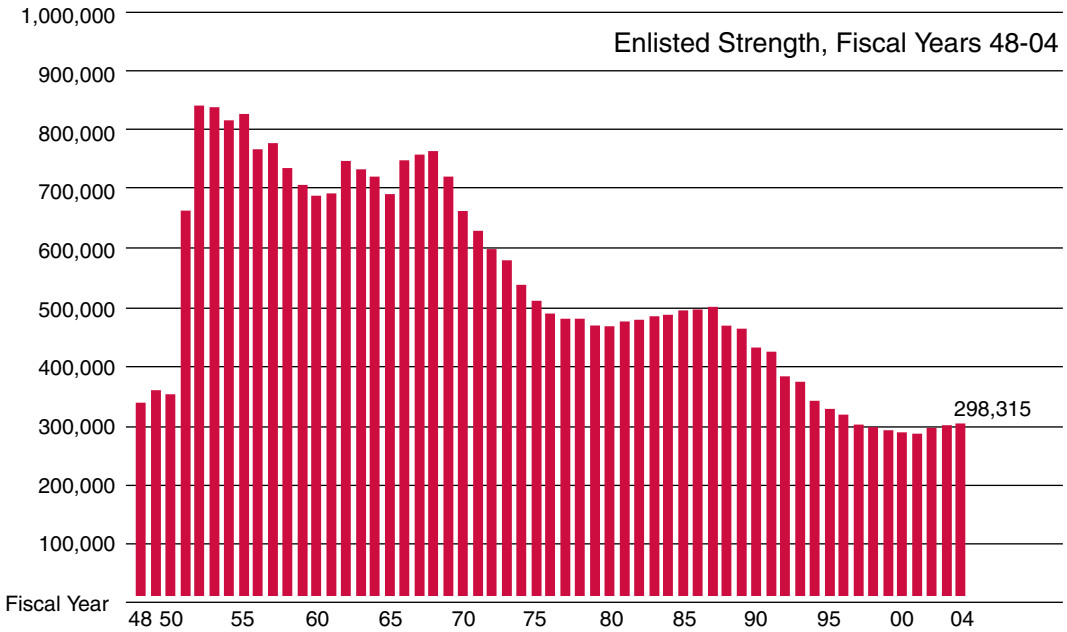
# PERSONNEL FACTS



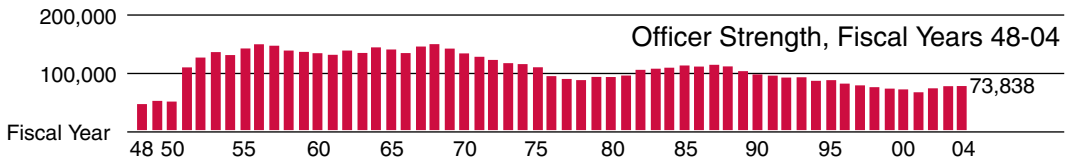
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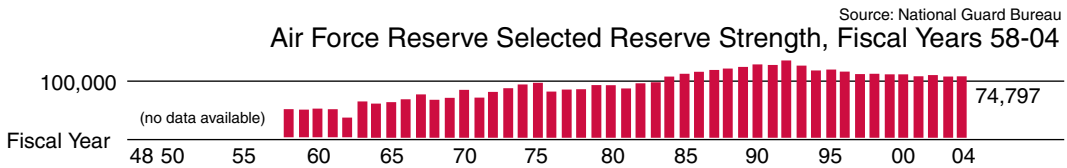
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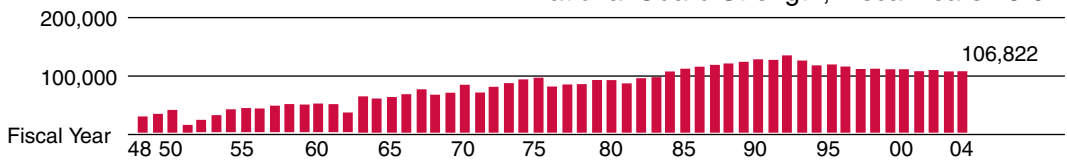
Officer Strength, Fiscal Years 48-04



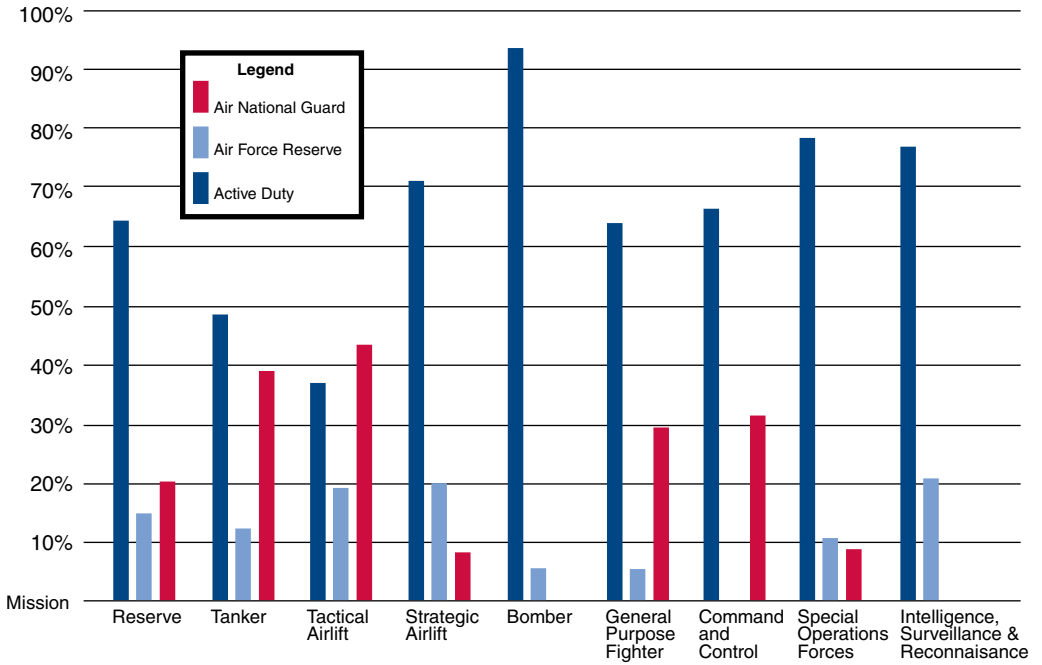
Air Force Reserve Selected Reserve Strength, Fiscal Years 58-04



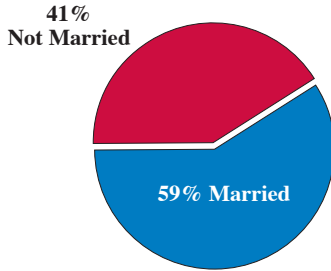
Air National Guard Strength, Fiscal Years 48-04



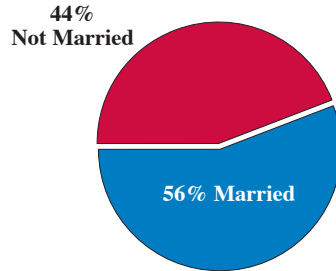
# Percent of Components Performing Various Missions



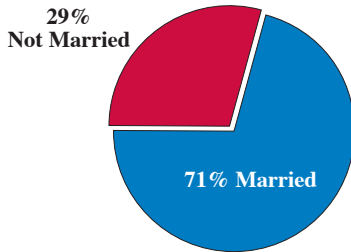
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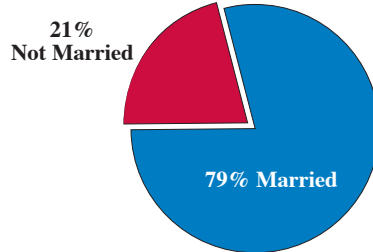
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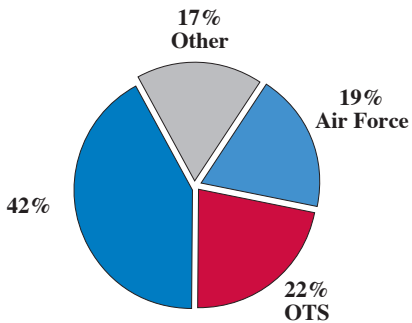
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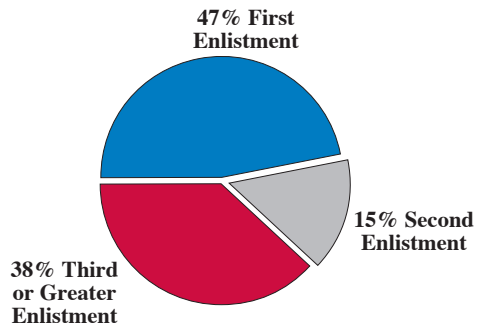
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## COMMISSIONING SOURCE

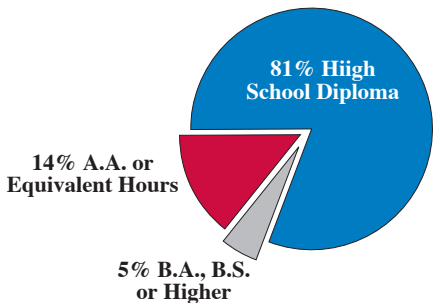


## ENLISTED LEVELS (ACTIVE FORCE)



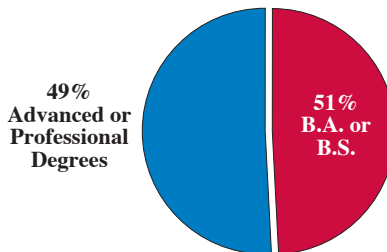
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(ACTIVE FORCE)



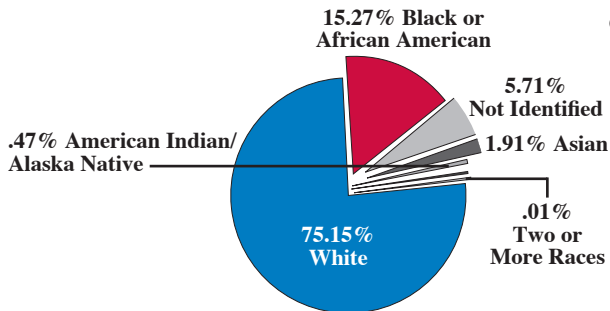
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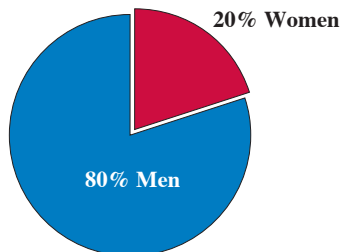
## RACIAL BREAKDOWN

(ACTIVE OFFICER)



## AF POPULATION BY GENDER

(STATESIDE vs OWNED)



# AIR FORCE INTERESTS



# Future Total Force

## BACKGROUND

- The Air Force will face increasing modernization and recapitalization challenges, hard to define adversaries and strained budget realities
- The Future Total Force (FTF) construct will overcome these challenges
- FTF will enable the Air Force to exploit a smaller, more technologically advanced fighting force using the limited budgetary dollars forecasted in the coming years
- FTF will more synergistically utilize the unique strengths of the members within the three components, Active Duty, Air National Guard (ANG), and Air Force Reserve (AFR)
- FTF will continue to strengthen the Joint Team by providing networked and integrated Joint Enablers such as air refueling, airlift, and 24/7 ISR capabilities

## DISCUSSION

- The FTF construct will increase combat capability by capitalizing on the inherent strengths of personnel in Active, Guard, and Reserve
- Active Duty will continue to provide rapid and flexible deployment capability
- ARC will bring cost effective force multipliers in their experience levels and surge capability
- To capitalize on the strengths of each component, the FTF Construct is based on the tremendously successful associate model
- Associate units are comprised of two or more components that are operationally integrated but whose chains of command remain separate
- New organizational constructs will integrate ARC and Active Duty in virtually every facet of Air Force operations
- The Air Force will reinvest savings realized from divestiture of aircraft and manpower
- Retirement of our oldest, least capable and most expensive weapon systems (i.e., F-16s, F-15s, C-141s) and reinvest savings into new weapon systems (i.e., F/A-22, F-35, KC-X)
- Integration will maximize utilization of our new weapon systems with both increased crew

ratios and maintenance experience levels on the flight line

- Reinvestment will help fund the exploitation of new and emerging missions (i.e., Air Operations Centers, Distributed Common Ground Stations, Information Ops, Space Ops, and UAVs)
- Enhanced reachback capabilities through technological advances will enable our ARC to operate from home station flying satellites, analyzing imagery, or flying a UAV
- Increase operational effectiveness while reducing reliance on involuntary mobilization of reservists giving stability to their other employers
- Divestment of active duty manpower while maintaining ARC end strength and their experience

## MAIN POINTS

- The future Air Force will be smaller and more capable
- Retirement of least capable, most expensive equipment
- Reduction in Active Duty endstrength while maintaining ARC endstrength
- Active Duty and ARC will share all missions
- Integration will foster synergy and a quicker, more flexible, and more lethal force

# Air Force Concepts of Operation and Joint Transformation

## BACKGROUND

- There are seven Air Force Concepts of Operations (AF CONOPS) that support the CSAF and joint vision of combat operations.
- AF CONOPS describe key Air Force mission and/or functional areas for enabling desired effects, articulate the capabilities required to achieve them, and inform Air Staff and Major Command senior leadership on the Air Force vision for capabilities development.
- The seven AF CONOPS include Global Strike (GS), Global Persistent Attack (GPA), Nuclear Response (NR), Homeland Security (HLS), Space and C4ISR (S&C4ISR), Global Mobility, and Agile Combat Support (ACS).
- AF CONOPS are sponsored by Major Command Commanders (Air Combat Command, Air Mobility Command and Air Force Space Command) and the Deputy Chief of Staff for Installations and Logistics, and are approved by the CSAF. Each AF CONOPS has a MAJCOM Flight Lead (except ACS), an Air Staff Champion and a small staff that advocates for the Air Force capabilities-based planning process through the AF CONOPS.
- The Joint staff has developed the joint concepts framework including the overarching Joint Operations Concepts (JOpsC) and the supporting Joint functional concepts.
- The Air Force is integrating its existing effects-based, capabilities-focused AF CONOPS within the Joint framework by developing an overarching Air Force Operations Concept (AFOpsC).



bilities necessary for the AF to present the full range of Air and Space Expeditionary Task Force Power to the Combatant Commander.

- These reviews are designed to help senior executive leadership identify capability short-falls, gaps, and redundancies, identify risks associated with capability status, and guide the planning, programming, budgeting and execution (PPBE) system to resolve problem areas in the Air Force capability portfolio.
- In 2003, the Air Force conducted individual CRRAs for the six AF CONOPS approved at that time, culminating in a successful Integrated CRRRA in Sep 03.
- The following year, the AF CONOPS Champions evaluated how the Air Force budget supported the capabilities necessary to execute the AF CONOPS. In 2004, all seven AF CONOPS were re-evaluated against a Master Capabilities Library (MCL), disciplining the AF CBP process and improving the quality of integrated assessments.

## MAIN POINTS

- The Joint Staff developed the Joint Operations Concept (JOpsC) in Fall 2002.
- The JOpsC serves as an overarching capabilities-based joint concept and outlines the hierarchy of operating, functional, and integrating concepts.
- The four Joint Operating Concepts (JOC) are Major Combat Operations, Stability Operations, Strategic Deterrence, and Homeland Security
- The eight Joint Functional Concepts (JFC) are Battlespace Awareness, Protection, Joint Command and Control, Force Application, Force Management, Net Centric, Training, and Focused Logistics.

## DISCUSSION

- Capabilities described by AF CONOPS are assessed through the conduct of a Capabilities Review and Risk Assessment (CRRA). These reviews inform senior leadership of those capa-

# Air & Space Expeditionary Force (AEF)

## BACKGROUND

- The AEF is a total force business practice and includes all active, guard and reserve forces. It sustains readiness and provides Air Force units and people with enhanced stability and predictability.

- AEF provides an adaptive response capability to present highly capable air and space forces and allows the Air Force to manage the force capabilities, determine when the force is stressed and identify where senior leadership needs to focus relative to personnel and OPSTEMPO

- AEF forces deploy as Air and Space Expeditionary Task Forces (AETF). AETFs are capability-based and right-sized to generate desired effects. Current demand for Air Force capabilities continues to be greater than the two AEF baseline. If requirements exceed the capabilities of an AEF pair then the system is designed to surge to meet the demand. This is accomplished by extending the deployment period of AEF forces and, if necessary, reaching into the next AEF pair for the needed capabilities.

- Up to four AEFs of capabilities can be deployed to meet combatant commander requirements for a finite period without significant adverse reconstitution effects. Over four AEFs is maximum surge and drives major reconstitution considerations.

- The AEF scheduling practice is executed through ten AEFs and the Enabler force that form the total Air Force capabilities eligible to deploy. Two AEFs (one pair) are eligible for deployment for a 4-month period. This generates a 20-month AEF cycle.

## DISCUSSION

- Each of the ten AEFs is structured with scheduled forces (aircraft, command and control, expeditionary support personnel and equipment) from which right-sized forces are deployed in support of theater combatant commanders.

- When deployed, AETFs fall into joint command structures, under the command of the Commander, Air Force Forces (COMAFFOR). AETFs are comprised of Air and Space Expeditionary Wings (AEWs), Groups (AEGs), and squadrons (AESs). AETFs are light, lean, and lethal force packages that can deploy quickly – delivering the right force at the right place at the right time. Each AEF contains combat, mobility, support and leadership capabilities that the Air Force task organizes for the Joint Force Commander.

- Geographically separated AD, ANG and AFRC units are postured among the ten AEFs.

- An AEF, with full mobilization, contains over 150 aircraft and 20,000-25,000 personnel.

- Air Reserve Component (ARC) volunteers are critical to AEF execution. Normally, ARC volunteerism satisfies approximately 25 percent of the aviation requirements and 13 percent of the expeditionary combat support requirements in each AEF pair.

## MAIN POINTS

- Organize, train, equip and sustain rapidly responsive air and space forces for 21st Century military operations. Meets defense strategy requirements using a combination of both permanently assigned forward and rotational forces.

- The seven Joint Integrating Concepts (JIC) are Forcible Entry Operations, Sea Basing, Air and Missile Defense, Global Strike, Joint Command and Control, Joint Logistics, and Under Sea Superiority.
- The Air Force is integrating its Concepts of Operations within the Joint Staff's conceptual framework.
  - Capability issues and opportunities are reviewed at the Functional Capability Boards, a forum to review and assess service capabilities and their contributions to joint operations.
  - The Air Force CONOPS (AF CONOPS) Champions participate, through Air Force channels, in the Joint Functional Capability Boards to help ensure all current and new programs that comprise Air Force capabilities are "born joint."
  - AF CONOPS and the Capabilities-Based Planning (CBP) Process will continue to evolve and support new program initiation through the Joint Capabilities Integration and Development System (JCIDS).

# Command and Control, Communications and Computers, and Intelligence, Surveillance, and Reconnaissance (C4ISR) Integration

## BACKGROUND

- U.S. advantage in sophisticated technology can be blunted by a lack of integration. Consequently, the Air Force seeks the seamless integration of manned, unmanned and space systems.

- Achieving an effective distributed, collaborative, enterprise-wide C4ISR capability that allows Command and Control centers to work together globally in support of the combatant commanders is one of the most important transformations the Air Force will make in the 21st Century. C2 Constellation ensures C4ISR capability is born-joint, fully integrated and interoperable with the other armed services. C2 Constellation, FORCEnet, and Objective Force/FCS are critical to achieving net-centric warfare.

## DISCUSSION

- Permits strategic-operational-tactical levels of war/operations to be both seamless and fully integrated. Integrates –command, control, communications, computers, intelligence, surveillance and reconnaissance into a seamless Command and Control (C2) Constellation that achieves speed of command, shared awareness, increased survivability, and greater lethality.

- Improved capabilities allow US forces to make better and faster decisions than any adversaries. By repeatedly executing decisions faster than an opponent, situational awareness is retained and the battlespace can be exploited to advantage.

- C2 Constellation partnership with the Army (FCS, Objective Force, FBCB2), and the Navy (FORCEnet, Sea Power 21) is a key effort toward achieving net-centricity. Netcentric capability conveys seamless and ubiquitous networking where air, space and ground assets have global machine-to-machine connectivity. In place of the current inflexible system, command and control forms a dynamic environment similar to

the Internet. Additionally, the Air Force is working with Joint Forces Command and the other services on the JC2/JBMC2 and DJC2 efforts to ensure the “Air and Space Component capability” arrives fully integrated and interoperable.

- UAVs role in ISR collection and exploitation is expanding. Operation Iraqi Freedom brought into being a greater integration of space systems with other ISR as the space tasking order was appended to the air tasking order daily.

- Key integration initiatives have been successfully tested in the Joint Expeditionary Force Experiment (JEFX). As a consequence of the JEFX series, thirty-two of the seventy-two Air and Space Operations Center Systems in the Combined Air and Space Operations Center for Operation Iraqi Freedom (OIF) were accelerated and successfully fielded. Of those thirty-two, thirteen JEFX initiatives tested in 2002 were fielded for OIF.

- OIF, measured vast improvements in executing the Find-Fix-Track-Target-Engage-Assess (F2T2EA) model. Efficiencies in information availability and dissemination accelerated the process of providing commanders with the right information allowing them to make faster and better decisions than adversaries. Increases in capability and support to other missions of the joint force (e.g. Close Air Support, Interdiction, and Reconnaissance) have been realized due to successful transition from the experiment.

- The Air Force, through the Deputy Chief of Staff for Warfighting Integration (AF/XI), is harnessing current and future C4ISR capabilities through the C2 Constellation concept and architecture. The C2 Constellation will enable the horizontal integration of ground, air and space sensors and battle management platforms. Key enablers of the C2 Constellation include, but are not limited to the C2 Constellation Nodes, such as:

- Combined Air and Space Operations Centers (CAOC) (FALCONERs and Tailored FALCONERs)
- Distributed Common Ground Station (DCGS)
- Multi-sensor Command and Control Aircraft (MC2A)
- Tanker Airlift Control Center (TACC)
- It also includes the enabling CONSTELLATIONnet Communications Infostructure functions to include:
  - Joint Tactical Radio System (JTRS)
  - Wideband Communications
  - Multi-Platform Common Data Link (MPCDL)
  - Network Centric Collaborative Targeting (NCCT)
  - Global Information Grid (GIG)-Bandwidth Expansion (BE)
  - GIG-ES
  - Transformational Communications
  - Network Centric Enterprise Services (NCES, etc.)
  - Family of Advanced Beyond line of sight terminals (FAB-T)
  - ROBE-equipped tankers
  - Tactical Data Link Architectures

## **MAIN POINTS**

- Mission: Integration of new information technologies to create a force multiplier for the warfighter.

# Expeditionary Logistics for the 21st Century (eLog21)

## BACKGROUND

- Replace five hundred plus legacy information technology systems such as the retail and wholesale supply systems with a suite of ten integrated modules.
- ECSS will be easily updatable with commercially available software solutions to capture new best business practices, with capabilities in product support, engineering, supply chain management, logistics command and control, and maintenance, repair & overhaul. These commercial off the shelf software packages provide solutions for an Expeditionary Combat Support System.



## DISCUSSION

- Four key effects provide improved integrated processes that tie organizations and functions together. These four effects, when combined, provide the foundations that produce a common view of logistics enterprise information. These effects are enabled by integrated technology to provide a tool set that empowers decision-making.

- Enterprise View- Ensures logistics decisions are made and actions are taken with an understanding of their impact across the entire Air Force. The Enterprise View will be created by new business processes, systems, and organizational changes that produce capabilities to make informed decisions that best meet the overall needs of the warfighting community.

- Integrated Processes - ELog21 seeks to improve the performance of processes by adapting, enabling, and institutionalizing best practices from industry and within the Air Force. We are implementing business processes that will move supply orders from the flight line to the source of supply in minutes rather than days; supplies can be directed and redirected to the most urgent need. Integrated processes will drive effectiveness and efficiency within the logistics enterprise.

- Optimized Resources - .We are optimizing our resources (human, financial, technology) across the logistics enterprise to produce efficiencies. The extensive skills and unmatched professionalism of our people at all levels is augmented through

training and technical support in the use of new business processes and information systems. We are institutionalizing operating principles and lean thinking to continuously improve business processes and eliminate waste.

- Integrated Technology - Systems and technology integration enables the reengineering of business processes by leveraging technological capabilities that were previously unavailable. Technological capabilities: automated business processes, incorporate best practices, provide visibility across the Air Force, and establishing transparency across systems. New information technology is a key to establishing an integrated, network-centric Expeditionary Combat Support System.

## MAIN POINTS

- Meet current and future logistical demands of the expeditionary Air Force.
- Planning horizon: initial operational capability 2011; fully operational 2012.

# Force Protection (FP)

## BACKGROUND

- The United States has been fighting in two distinct geographic areas, Iraq and Afghanistan, and increased the number of forward operating locations in CENTCOM to a peak of 36 bases.
- OIF, OEF, ONE, and the GWOT will continue to strain our force protection functionals for the long-term. The Air Force validated that security forces rank among the top five career fields in the Air Force in PERSLOAD stress because of home station and deployment taskings.



## DISCUSSION

- In order to support the combatant commander's requirements, steady-state security forces deployment taskings are approaching peak OIF combat levels.
- In addition to Air Force missions, the security forces continue to support doctrinal Army missions because of an enduring shortage of military police specialists
- On the home front, sustaining increased alert postures against an enduring asymmetric threat places further demands on an already strained force.
- To meet this expanded threat environment and compliment AEF operations a new Force Protection concept of Integrated Base Defense (IBD) is being implemented. The new IBD concept draws from lessons learned from recent events and defines a Force Protection role for every Airman as a sensor and potential defender of bases and critical assets. Besides these changes to training, tactics, techniques, and procedures, resulting in a more integrated, active domination of the battlespace, the Air Force is also developing a wide range of offensive and defensive capabilities in the physical security arena. They include new ground sensors, unmanned aerospace

sensors; a common operating picture and command and control suite that links these sensors to remotely operated weapons and robotic systems. Non-lethal weapon systems like the Active Denial System will have the potential for bringing a revolutionary set of capabilities

to commanders across a wide range of the operational spectrum. The Force Protection Battlelab is expanding efforts to identify innovative ways to combat terrorism and is working on new methods of explosive detection, blast mitigation, and chemical and biological detection.

- Countering and defending against the use of chemical, biological, radiological, nuclear, and high-yield explosive (CBRNE) weapons is another contributing element of Force Protection and IBD. The growing threat posed by CBRNE weapons is one of the most serious challenges facing the Air Force today. The Air Force has taken on the challenge to more fully develop and institutionalize required Counter-CBRNE capabilities, enabling the success of the aerospace mission in the 21st Century battlespace. The service must be capable of preventing adversary acquisition or development of CBRNE weapons and delivery means through proliferation prevention efforts, neutralizing an adversary's CBRNE capabilities through attack operations, diminishing the effectiveness of CBRNE threats via active and passive defense, and must be prepared to restore essential operations and services in managing the consequences of CBRNE attacks. The Air Force is in the process of implementing a Counter-CBRNE Master Plan to develop capabilities to meet operational needs while maximizing joint cooperation and leveraging existing institutions and capabilities in the process, creating a force that owns the battlespace and dissuades and deters adversaries from developing, acquiring, and using CBRNE weapons.

- Army National Guard support provided temporary mitigation of our security forces manpower shortfall, enabling our investment in technologies, improved tactics, techniques and procedures, and more effective FP policy to continue. This support ended in the first quarter of FY 05.

Security forces will mitigate its enduring, albeit shrinking, manpower shortfall with a combination of internal manpower realignments into security forces (~1150 in FY 04), Air Reserve component (ARC) volunteers and private contractors.

The Air Force remains committed to integrating technology to lessen the demand for security forces manpower. Ongoing efforts include the use of remote sensors and automated entry control. Pilot programs at places like Andrews Air Force base are on-going and show promise for the future.

- Intelligence and counterintelligence programs also support an integrated approach to force protection.

- We continue to develop, employ and improve all-source intelligence systems, cross-functional intelligence analysis procedures, and an operational planning process to implement FP operations that meet Air Force strategic objectives.

- Finally, the Air Force fielded improved fire-power capabilities through deployment of the M4 carbine, the M240B machine gun, the M24 Sniper Weapons System, and remotely operated weapons systems.

## **MAIN POINTS**

- The enduring nature of the current conflict with its force protection demands at home and abroad will continue to place significant demands on the Air Force.

- To lessen the manpower impact and in addition to permanent internal manpower realignments, the Air Force will use non-traditional manpower sources such as ARC volunteers and private security guard contractors.

# Homeland Security (HLS)

## BACKGROUND

- Defending the Homeland is a Total Force effort. It is defending our skies with Active Duty, Auxiliary, Guard and Reserve personnel; it is protecting our critical infrastructure; it is accomplished by protecting our airmen where they work and live at our installations; it is the collection and sharing of intelligence information on known or potential terrorist threats with our interagency partners; it is determining our capabilities to strengthen our defense; and it is providing assistance to civilian agencies when called upon.

## DISCUSSION

- Air defense of the United States and its territories is the principle air force homeland security mission.
- The new steady state ground alert structure has over doubled that of pre-9/11 when there were only 7 alert bases. Now these 18 alert bases are strategically located at Active Duty, Air National Guard (ANG) and Reserve bases in the CONUS, Alaska and in Hawaii.
- Since 9/11, tens of thousands of sorties (fighters, tankers, airborne early warning aircraft) have been flown in defense of the United States.
- The ANG has primary responsibility for sitting alert at 17 sites, with the Active Duty filling one location.
- Combat Air Patrols (CAP), conducted primarily by the ANG, is another important component of this mission, protecting the US population from attack.
- Since Operation NOBLE EAGLE and now the steady-state Air Sovereignty Alert, thousands of combat air patrols have been diverted from their CAP locations or scrambled from alert bases to intercept targets of interests.
- Air Force mission critical assets need to be protected from the wide range of natural disasters and man-made conventional and asymmetrical threats.

- The USAF Critical Infrastructure Program (CIP) is a mission assurance focused program that encompasses Air Force and non-AF owned assets and infrastructures (domestic and foreign), both physical and cyber, that are essential for planning, mobilizing, deploying, executing and sustaining military operations on a global basis, and assuring their availability when required.

- CIP identifies mission critical assets, asset dependencies, vulnerabilities of those critical assets, remediation requirements and priorities, and their impact to those missions and functions essential to the execution of National Military Strategy, if those assets were lost or degraded.

- Air Force Intelligence organizations like the Air Intelligence Agency along with the Air Force Office of Special Investigations provide timely, accurate intelligence on known and potential terrorist threats to USAF personnel intelligence that directly and indirectly supports HLS.

- Daily worldwide intelligence collection provides critical information on threats ranging from weapons of mass destruction to potential terrorist attacks on US facilities at home and abroad.● Homeland Security Capabilities Review and Risk Assessment identified Air Force capabilities to support the National Strategy for HLS objectives of preventing terrorist attacks within the United States, reducing America's vulnerability to terrorism, and minimizing the damage and recovering from attacks that do occur.

- The primary purpose of the CRRA is to identify shortfalls between required and actual capabilities and offer solutions to senior Air Force leaders.

- The Air Force continues to adapt to profound changes in the nature of conflict and the conduct of war. Asymmetrical warfare, terrorism, cyber attacks and the threat of chemical, biological, radiological, nuclear, and high-yield explosive weapons demand immediate attention at home

and abroad. As these new threats emerge and are evaluated, so must to the Air Force's role in combating these threats.

- Advanced Air Force warfighting effects and capabilities must be applied against current and emerging threats to prevent attacks, reduce vulnerabilities, protect our people and infrastructure and assure continuity of operations.

- The Civil Air Patrol (CAP) has been reenergized to provide additional capabilities, like Hyper Spectral Imaging and Satellite Digital Imaging Systems to support NORTHCOM, other federal agencies and state and local governments. These new CAP capabilities support current and future CAP missions like Search and Rescue, Homeland Security, Disaster Relief, and Counterdrug and enhance Air Force operations.

- This action utilizes approximately 64,000 non-paid volunteers and over 1,650 units located in all 50 states, the District of Columbia and Puerto Rico.

- The Air Force continues to organize, train and equip to support NORTHCOM's mission to support Lead Federal Agencies (FEMA, US Secret Service and the Department of the Interior) as directed by OSD.

## **MAIN POINTS**

- Air Force Homeland Security office develops policy and guidance and provides the Headquarters Air Force operational expertise and oversight in homeland security/defense and military support to civil authorities; advocates the AF view/position and incorporates HLS operational concerns in planning, programming and funding priorities. Long-term vision is to synchronize and integrate AF capabilities to secure the homeland.

# Lessons Learned

## BACKGROUND

● Historically, the Air Force stood up temporary task forces to track and exploit information gathered during major contingencies. Senior leadership recognized the immense transformational benefits to be gained by acting decisively on lessons from recent major contingencies such as OIF and OEF. In March 2004, the Air Force stood up a permanent Office of Air Force Lessons Learned that reports directly to the Deputy Chief of Staff of Air & Space Operations to collect, analyze, track, and disseminate lessons learned from combat, exercises, training, and contingency operations.

## DISCUSSION

● The Office of Air Force Lessons Learned has three main areas of focus that include collections and assessment, tracking and exploitation, and dissemination and support.

### ● *Collections And Assessment*

The collections and assessment section constructs and executes data collection plans, provides core personnel and assembles subject matter experts to collect and vet Lessons Learned.

### ● *Tracking And Exploitation*

The tracking and exploitation branch tracks and disseminates information and issues related to Air Force Lessons Learned until they are fixed, or a conscious decision is made not to fix them. Tracking provides feedback on the current status of ongoing actions, prevents duplication of effort, and ensures issues do not “fall through the cracks” before a solution is reached.

### ● *Dissemination And Support*

The dissemination and support section prepares and disseminates final reports and other informational tools, which reflect fully-processed lessons learned and best practices.

● Collection team examined air operations and provided actionable reports for the US Central Command Joint Forces Air Component Commander (JFACC) on air operations in support

of Operation Al Fajr, operations in Fallujah, Iraq in November 2004. They also led a team that examined all aspects of Air Force participation in Operation Unified Endeavor, support of relief operations following the December 2004 tsunami in south Asia.

● Currently tracking more than 500 individual action items from CENTAF After Action Reports, and a number of specific reports on areas of interest to the warfighter. Responsibility for enacting solutions to outstanding issues remains with the appropriate Air Force functional communities.

● The dissemination and support section also serves as a public affairs focal point for all Air Force Lessons Learned activities and administers the AF/XOL Web site.

● Solutions to lessons learned span the full spectrum of Air Force operations, including Doctrine, Organization, Training, Materiel, Leader and Education, Personnel and Facilities (DOTMPL-F).

## MAIN POINTS

● The mission of the permanent Office of Air Force Lessons Learned is to identify improvement opportunities, aggressively track the development of effective solutions, and disseminate Lessons Learned to the warfighting community. Its vision is to shape Air and Space Operations through full-spectrum engagement.

● The office provides direct input to the Capabilities Review and Risks Assessment (CRRA) and Program Objective Memorandum (POM) processes to ensure lessons learned requiring material and programmatic solutions are evaluated at the proper level and time to ensure lasting transformational change.

● The permanent Office of Air Force Lessons Learned will also provide a direct and permanent conduit to Joint Forces Command's (JFCOM) joint lessons learned function.

# Long Range Strike Capability (LRS)

## BACKGROUND

● AF is modernizing current long range strike capability to meet near-term COCOM requirements; assessing need for a complementary regional strike capability that is responsive and persistent; investing in technologies to field a long range strike (LRS) capability in the 2035 timeframe

## DISCUSSION

● The AF strategy for LRS is pre-decisional. ACC is currently, within the framework of the JCIDS process, updating the capabilities required for LRS. Congress has given the AF plus-up money in FY04 and FY05 for “Next Generation Bomber”; AF is using this money for concept refinement and preliminary AoA work for LRS

### ● Current Bomber Force

● Upgrades: \$4B (FY06 PB total for 3010/3600) for upgrades to B-1, B-2, and B-52 aircraft

● Modifications increase near-term combat capability by upgrading and improving maintainability, survivability, deployability, navigation, communications, weapons delivery and electronic attack and protection systems

● Integration of advanced weapon capabilities and Link-16 enable bombers to accomplish real-time re-targeting and threat situational awareness

### ● Service Life

● Service life estimates carry the bomber fleet well into the 2030s—service life does not equal operational relevance

### ● Operational Relevance

● Emerging threats will reduce combat relevancy of current bomber force prior to their end of service lives

### ● Regional Bomber/Regional Strike Concept

● Concept to address the gap between current and next generation’s capabilities

● Use current technology (off-the shelf or fielded variant) as stepping stone

● Complements and enhances current bomber fleet

● IOC in the 2015-2020 timeframe

### ● Responsive and Persistent

● 24/7 Stealth—day and/or night, all-weather capability

● Speed and strike attributes—weapons on target when required, not when available

● Capable vs. moving targets (day/night, all-weather) and hard, deeply buried targets

● Improved survivability and lethality—stealth, lethal self-protection, precision

● Integrated into the Global Information Grid (Net-Centric Ops)

### ● Long Range Strike Concept

● IOC in the 2035 timeframe—transformational capability in terms of speed, accuracy, connectivity and survivability

● 24 studies since 1999—family of systems approach and C4ISR improvements and modifications are main outcomes

● AF continues to invest in transformational science and technology: weapons, sensor technology, materials/processes, information systems, human factors, non-air breathing capability (Space), and air breathing capability

## MAIN POINTS

● The AF LRS strategy is still in concept refinement /pre-AoA stage—some requirements still undetermined

# Science and Technology (S&T)

## BACKGROUND

- The S&T Program discovers, develops, and demonstrates affordable, flexible transformational air and space technologies to provide superior warfighting capabilities for the 21<sup>st</sup> Century.
  - Retain warfighter capability dominance of air and space in future conflicts vs. traditional and asymmetric threats
  - Continue transforming warfighting capabilities to prevent technology surprise from potential adversaries
- The S&T Program consists of three elements:
  - Basic Research: Primarily university and Air Force in-house laboratory based—discovers, identifies, and develops, militarily-relevant scientific knowledge, principles and products.
  - Applied Research: Primarily industry, university and Air Force based—determines technical feasibility in a laboratory environment of advanced, military capability focused technologies.
  - Advanced Technology Development: Primarily industry and test and evaluation based—develops and demonstrates technologies focused on future warfighter capability needs.
- The S&T Program:
  - Is directly linked through the S&T Plan to the Concept of Operations for each of the seven major Air Force tasks
  - Is capability-focused on quality and relevance to meet warfighter air and space technology needs
  - Includes operational and technical expert input to maintain a balanced technology investment that addresses future capability needs
  - Facilitates and promotes rapid transition into fielded and emerging systems through contracts/grants with industry and universities
  - Coordinates technology developments with Services/Defense Agencies through the Defense Reliance process



## DISCUSSION

- The Air Force shares Congressional support for a robustly funded Air Force S&T Program and has maintained stable funding that addresses future warfighter capability needs.
- The FY06 S&T budget lays the foundation for continuing Air Force transformation to a capabilities-based construct that can react rapidly, with decisive force, to worldwide contingencies and supports the transformation in how we think about employing our forces to defend our nation, as well as transformational leaps in our technology.
- Continued involvement of the warfighting commands and senior Air Force leadership in the planning and prioritizing of the S&T Program results in significant FY06 investment in technologies such as directed energy, laser-based communications, effects-based operations, assured access to space, and the emerging field of nanotechnology – all of which show clear promise for joint warfighting capabilities.

## MAIN POINTS

- Air Force S&T is funded at a level that addresses future warfighter capability needs and lays the foundation for the Air Force transformation to a capabilities-based construct.
- Air Force S&T discovers, develops, and demonstrates affordable, innovative warfighting technologies that multiply the combat effectiveness of our air and space forces and addresses future warfighter capability needs.
- U.S. industry and universities execute the majority of S&T funds, while the Air Force Research Laboratory performs selected in-house research in niche technology areas that are deemed important to future capability needs.

# BATTLE MANAGEMENT



# Air Force Combat Identification (AF CID)

## Acquisition Status

- **Program Status:** The Combat Identification program is a collection of emerging technologies designed to more readily and positively identify enemy equipment to enhance mission effectiveness and reduce fratricide. Funding under this program is to identify the most promising technologies and accelerate their transition to operational use. It encompasses both systems where the target voluntarily identifies itself as a friend (cooperative) and where it does not (non-cooperative).
  - Cooperative Systems– Mark XIIIA Mode 5 secure Identification Friend or Foe (IFF) interrogator/transponder beacon system, which replaces the legacy and less secure Mode 4 military IFF.
  - Non-Cooperative Systems – Several efforts pursuing air-to-ground, air-to-air and ground-to-air identification systems that match radar or laser signatures derived from suspected enemy equipment with a signature database of known enemy equipment to positively identify friendly and enemy targets.
- **Contractors:** Various. Major ones are Raytheon, Telephonics, Lockheed Martin, SAIC and BAE Systems

## Capabilities/Profile

- Air Force's primary source for acquiring systems to attain an accurate characterization of detected objects in the joint battlespace to the extent that high confidence, timely application of military options and weapons resources can occur. Provides the ability to fully exploit the full spectrum of warfare both from the ground, air and space.
- Current cooperative combat identification projects:
  - Mark XIIIA, Mode 5/S upgrade program
- Current non-cooperative combat identification projects:
  - Laser Vision advanced laser technology with electro-optical targeting pod
  - Radar Vision synthetic aperture radar signature and ID system
  - High Range Resolution Radar identification
- Modeling and Simulation projects covering analysis of alternatives and investment strategy decisions.

## Functions/Performance Parameters

- **Mission:** Accelerate transition of advanced CID technologies into tactical weapons systems (Fighter, Bomber, C2ISR platforms). Demonstrate effectiveness of selected concepts and sensors. Assess combinations of CID technologies through Modeling and Simulation and analysis. Improve interoperability and commonality through coordination with Services, DoD agencies and NATO. Program looks at the Family of Systems since no single system can provide combat identification.
- **Performance Parameters:** Established separately by each platform.

# Air Force Distributed Common Ground System (AF DCGS)

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Langley AFB, VA; Beale AFB, CA; Hickam AFB, HI; Ramstein AB, GE, Osan AB, Korea
- **Current Inventory:** 2 Worldwide cores, 3 Regional Cores, 2 Remote AFFORs, 3 Remote National Mission Partner (NMP) sites, and National Guard Bureau support
- **Projected Inventory:** 18 sites
- **Contractors:**
  - Advent, Ampex, BAE Systems, General Dynamics, Goodrich, Huston-Fearless, L3 Communications Systems, Lockheed Martin, LMA, MITRE, Northrop Grumman, Raytheon, Riverside Research, Rockwell, SAIC, SeiCorps, SRA, TRACOR
- **Future Upgrades:** Block 10.2 and Block 20; Extended Tether Program (ETP) Expansion



## Capabilities/Profile

- **Service Ceiling:** N/A
- **Combat Range:** Worldwide via geographically separated elements linked together electronically
- **Armament:** None
- **Dimensions:**
  - N/A - Distributed world-wide architecture
- **Weight:**
  - N/A - Distributed world-wide architecture

## Functions/Performance Parameters

- **Mission:** AF DCGS is a Multi-Intelligence, network-centric, ISR weapon system that provides decision quality information to the Joint Task Force (JTF) and below:
  - Provides direct threat warning to U.S. and coalition aircrews; Intelligence Preparation of the Battlespace and Predictive Battlespace Awareness; Combat Search and Rescue; Targeting and Mission Planning; and Humanitarian Relief Operations; Non-combatant Evacuation Ops; Battle Damage Assessment; Time-critical Targeting, Combat Identification, etc.
- **Performance Parameters:**
  - Receives, processes, exploits, fuses and disseminates ISR data and information from space, air, ground and sea collection platforms sensors
    - Conducts up to 20 simultaneous 24/7 global ISR missions
    - Sortie Duration: Sustained 24/7 worldwide operations
  - **Service life:** Infinite based on modernization strategy of Block and Spiral upgrades that refresh the weapon system's hardware, software and infrastructure as required
  - **Payload:** N/A

# Air and Space Operations Center Weapon System (AOC-WS)

## Acquisition Status

- **Program Status:** MS B for development of Falconer 10.2 scheduled for 4QFY04
- **Production:**
  - Fielding and Sustainment of current AOCs
  - Awaiting MS B decision for Falconer 10.2 configuration
- **Procurement Objective:**
  - 5 Falconer 10.1 configured AOCs by end of FY 05
  - Six AOC training suites in FY06 and Operational assessment tools by FY 07
- **Contractor:** Contract for Lead System Integrator to be awarded by FY06
- **Future Upgrades:** Falconer 10.2 upgrades in FY09

## Capabilities/Profile

- Synchronization of feeder programs (Theater Battle Manager Core System, Global Command and Control System, Time Critical Targeting, Distributed Common Ground System, Operational/Tactical Assessments) to achieve fusion of information in support of C2 decision makers and tactical execution.
- Provide Intelligence, Surveillance and Reconnaissance Management
- Provide comprehensive and Time Critical Targeting decisions
- Interoperable with coalition partners
- Reduce forward footprint in Theater of Operations

## Functions/Performance Parameters

• **Mission:** The AOC is the COMAFFOR's Weapons System, provided to the Joint Task Force (JTF) and Joint Force Air Component Commanders (JFACC). It is the primary tool for commanding air and space power in all aspects of conflict. The AOC provides integrated and interoperable C2 of Air and Space Forces by synchronizing activities in time, space and purpose in order to achieve unity of effort. The AOC is modular and scalable to support operations ranging from major theater war to non-combatant evacuation operations. AOC scalability is denoted in terms of Response Packages configured around a general sizing metric based on sorties per day. The AOC program office provides necessary structure to transition rapidly evolving C2 programs, processes and concepts into a more advanced and efficient AOC.

### • Performance Parameters:

- Generate and automatically disseminate air operations plans and supporting plans for required level of response forces during planning
  - Initial Response Package—300 sorties per day
  - Quick Response Package—500 sorties per day
  - Limited Response Package—1500 sorties per day

- Theater Response Package—3000 sorties per day
- Integrates joint/coalition forces during planning
- Produces a detailed Intelligence, Surveillance and Reconnaissance collection plan
- Conducts Time-Critical Targeting
- Displays consolidated operational picture
- Provides an open architecture that supports “plug and play” capability

# Air Support Operations Center (ASOC)

● **ASOC Description:** The ASOC is the element responsible for planning, coordination, control, and execution of air operations that directly support ground combat forces. ASOCs are normally located at corps levels. In multicorps theaters, each corps Fire Support Element (FSE) will be collocated with an ASOC. Each ASOC reports to the Joint Air Operations Center (JAOC).

● **Operational Activities:**

- Maintain Adversary Ground Based Force and Resource Information
- Monitor tasked operations
- Manage air interdiction missions
- Manage OCA missions
- Manage planned CAS missions
- Manage changes to weapon engagement zones
- Manage weapon control status (non-time critical)
- Manage fire control orders
- Manage alert assets
- Manage surface coordinating measure changes

- Monitor battlespace for dynamic events (Find)
- Disseminate threat advisories and warnings of attack
- Direct (as required) retrograde or evasive maneuvering
- Execute engagement option
- Manage dynamic execution of CAS
- Determine target significance/ urgency (Track)
- Authenticate target
- Prioritize Watch List Targets
- Manage time critical defensive counterair changes
- Verify event/indication is of interest
- Define target/target set
- Validate target/target set
- Attack target
- Manage time critical airspace control changes
- Nominate engagement option
- Conduct dynamic assessment of target

# Control and Reporting Center (CRC)

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:**
  - *Active:* Eglin AFB, FL; Hill AFB, UT; Mountain Home AFB, ID; Spangdahlem AB, GE; Aviano AB, IT
  - *Guard:* Orange, CT; Savannah, GA; Gulfport, MS
- **Current Inventory:** 32 Operations Modules (OM), 16 RADARs
- **Projected Inventory:** No changes predicted
- **Contractors:**
  - Northrop Grumman (RADAR)
  - Northrop Grumman (MCE OMs)
- **Future Upgrades:** Battle Control System - Mobile - open system architecture capable of being part of the Global Information Grid and enhanced operational capabilities (for time critical targeting and sensor fusion) (FY06+), Remote radar and radio (FY03-05), Mode 5, Service Life Extension of Radars



## Capabilities/Profile

- **Service Ceiling:**  
~ 99,000 Feet
- **Surveillance Range:**  
~240 NM
- **Additional Capabilities:** 24/7 joint battle management, command, control and communications capability; performs multiple/simultaneous data links including TADIL A/B/C/J, ATDL and NATO Link 1
- **Unit Composition:** CRC consists of approximately 370 personnel, four Operations Modules (OM), two AN/TPS-75 radar sets, and associated communications/support equipment

## Functions/Performance Parameters

- **Mission:** The CRC is a persistent air, land, and sea deployable command and control (C2) battle management (BM) platform employed at the tactical level of war. It is the most forward C2 link in the Air Force's part of the Joint Battle Management Command and Control (JBMC2) family of systems. It is an open architecture system providing a

critical tactical C2 node that is interoperable with other JBMC2 systems and provides networked joint forces: Real-time shared situational awareness at the tactical level and common shared situational awareness at the operational level; Decision superiority enabling more agile, more lethal, and survivable joint operations; Integrated real time offensive and defensive fires. The CRC is the tactical link with other Services that is responsible for conducting the horizontal integration of the planning, directing, coordinating, and controlling forces functions for joint operations. The CRC may be employed by itself or in combination with other tactical C2 assets and supports a broad range of military operations in all phases of the crisis/contingency life cycle.

- **Performance Parameters:** Provides the Joint Task Force/Joint Forces Air Component Commander with a deployable, stand-alone, theater battle management C2 system capable of operating 24/7 with minimal augmentation. Three combat crews execute core competencies of surveillance, identification, data link management, theater air defense and air battle execution (DCA/OCA, Air Refueling, Force Marshalling, etc.).

# Tactical Air Control Party (TACP)

## Acquisition Status

- **Program Status:** Sustainment

## Functions/Performance Parameters

• **Mission:** The TACP is the principal Air Force liaison element aligned with tactical Army maneuver units. The mission of TACPs is to integrate air and space power with the ground scheme to maneuver and to advise their respective ground commanders on the capabilities and limitations of air and space power. TACPs also provide Joint Terminal Attack Controllers (JTAC) as the primary controllers for close air support. TACPs are the principal Air Force element in Direct Support of Army combat forces.



### • Performance Parameters:

- Request immediate close air support missions
- Provide terminal attack control of close air support missions
- Provide Battle Damage Assessment reports for close air support missions
- Integrate air and space power with ground scheme of maneuver
- Request Airspace Coordination Measures
- Request Fire Support Coordination Measures
- Manage pre-planned and immediate Close Air Support (CAS) missions
- Manage air defense weapon control status (non-time critical)
- Manage fire support control orders
- Disseminate threat advisories and warnings of attack
- Direct (as required) retro grade or evasive maneuvering
- Determine target significance/urgency (Track)
- Execute engagement option (Engage)
- Conduct dynamic assessment of target (Assess)
- Manage dynamic execution of CAS
- Determine rescue significance/urgency (Track)
- Monitor battlespace for dynamic events (Find)
- Verify event/indication is of interest (Find)

SPACE



# Progress in Space Acquisition

## BACKGROUND

● In October 2001, the Secretary of Defense directed implementation of several actions in response to the Commission to Assess United States National Security Space Management and Organization, known as the “Space Commission.” Since then, DoD has:

- Designated the Air Force (AF) as the DoD Executive Agent for Space
- Delegated Milestone Decision Authority (MDA) for DoD Space Systems to the Air Force
- Assigned the Under Secretary of the Air Force as AF Acquisition Executive for Space
- Established a “virtual” Space Major Force Program
- Appointed the Under Secretary of the AF as Director, National Reconnaissance Office (NRO)
- Established Air Force Space Command (AFSPC) as a separate four star Combatant Command
- Reassigned the Space and Missile Systems Center (SMC) to Air Force Space Command
- Designated the Commander, SMC as the Program Executive Officer for Space
- Published National Security Space (NSS) Acquisition Policy 03-01 specifically tailored for acquisition of small quantity space systems
  - Establishes a consistent space system acquisition process between NRO and DoD
  - Reaffirms “mission success” as the overarching guiding principle
  - Reduces the acquisition decision cycle time by using an independent program assessment team of recognized experts to perform focused reviews and advise the MDA on program risks
  - Restructures Key Decision Points (KDPs), moving them earlier in the acquisition life-cycle to identify risks and potential problems
  - Establishes a Defense Space Acquisition Board to advise the MDA at KDP reviews

- Establishes a world-class cost estimating capability led by OSD Cost Analysis Improvement Group and comprised of the broader military space community (NRO, OSD, USAir Force, US Navy, US Army, Intelligence Community)
- Designated the Commander of Air Force Space Command as the Space Professional Functional Authority to develop the space cadre
  - NSS Institute activated 1 Oct 04 in Colorado Springs to train the space cadre
- In addition, SMC is undertaking multiple initiatives to enhance space acquisitions
  - Instituted the SMC Launch Verification Process
  - Developed robust Acquisition Center of Excellence
  - Growing and retaining technical expertise and revitalizing systems engineering

## MAIN POINTS

- NSS Acquisition Policy 03-01 institutionalizing an improved acquisition process for DoD Space Systems based on NRO and DoD lessons learned

# Advanced Extremely High Frequency (AEHF)

## Acquisition Status

- **Program Status:**  
System Development and Demonstration (SDD)
  - Milestone B and approval to enter SDD in October 2001
  - SDD Contract: 16 November 2001; definitized 15 August 2002
- **Satellites on Orbit:**
  - First Launch April 2008
- **Satellites in Development:** 3
- **Contractors:**
  - System Definition: National Team: Lockheed Martin, Northrop Grumman, & Boeing
  - System Design & Development: Contractor Team: Lockheed Martin & Northrop Grumman
- **Future Upgrades:**  
Transformational Satellite (TSAT) System
- **Purchase Requirements:**  
Worldwide coverage requires a 4 satellite constellation; the first TSAT is planned to complete the AEHF constellation.



## Capabilities/Profile

- **Key Performance Parameters:**
  - **Coverage:** Worldwide between 65 degrees north & south; 24 hours/day
  - **Capacity/Satellite:** Threshold: 500 Mbps  
Combined Major Theater War (CMTW) scenario (Objective: 1.2 Gbps) & 350 Mbps strategic scenario
  - **Anti-Jam Protection:** Support users exposed to fixed, transportable and mobile jammers
  - **Nuclear Protection:** Provide assured communications for networks supporting critical functions
  - **Access and Control:** Provide users ability to plan, control and reconfigure resources
  - **Interoperability:** Backwards compatible with Milstar; Support joint warfighter communications between EHF terminals

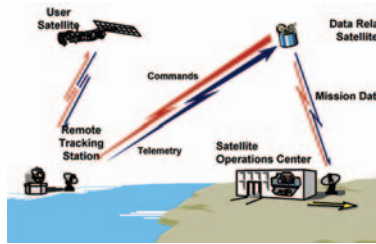
## Functions/Performance Parameters

- **Mission:**
  - Replenishes capability currently provided by the Milstar system with additional capability
  - Provides more capacity than Milstar
  - Provides more coverage/communications options than Milstar
  - Will launch on Evolved Expendable Launch Vehicle (EELV)
- **Performance Parameters:**
  - Low Probability of Intercept (LPI)
  - Low Probability of Detect (LPD)
  - Maximum Data Rate increases from Milstar rate of 1.5 Mbps to 8.2 Mbps
  - Throughput increases to ~12x Milstar capability in CMTW scenario

# Air Force Satellite Control Network

## Acquisition Status

- **Program Status:** Operational
- **Unit Assignment:** Air Force Space Command
- **Current Inventory:**
  - 8 Remote Tracking Stations (RTSs)
  - 22 Antennas: 15 at the RTSs, 4 Data Link Terminals, 1 Checkout Facility, 2 Transportables
  - 2 Operations Control Centers
  - Centralized Command and Control
- **Projected Inventory:**
  - 8 RTSs
  - 21-24 Antennas: 16 at the RTSs, 2-3 Data Link Terminals, 1 Checkout Facility, 2-4 Transportables
  - 2 Operations Control Centers
  - Distributed Command and Control
- **Contractors:**
  - Honeywell Technical Services, Colorado
- **Current Upgrades:**
  - Remote Tracking Station Block Change to replace unsustainable, aging antennas and 1960's electronics
  - Network Operations improvements-- scheduling and orbit analysis system upgrade; interoperability with commercial and civil networks
- **Future Upgrades:**  
Automation, increased capacity, interoperability with other satellite networks, and improved reliability through modernization



## Capabilities/Profile

- Global system of control centers, remote tracking stations and communication links
- U.S.'s only high-power, 24/7, global network operating DoD, National, Civil, and Allied satellites in any orbit
  - Required for all DoD launch and early orbit operations
  - Telemetry, Tracking, and Commanding (TT&C)
  - Real-time low data rate mission data transfer for critical missions
  - US Government's best option for anomaly resolution and satellite emergencies
  - Critical for meeting war--fighter real-time and near real-time weather, missile warning, navigation, surveillance and communications requirements

## Functions/Performance Parameters

- **Mission:** Deploy, checkout and fly operational USAF, National, Allied and R&D satellites.
  - Provide TT&C operations, relay mission data and communications, and end-of-life disposal support
  - Provide launch & early orbit tracking operations support for US and allied launches
  - Augment other satellite control networks with additional on-orbit operations reach
  - Provide accurate satellite positioning data for avoiding collisions and radio frequency interference
  - Resolve operating emergencies with high-power uplink--averages 1 satellite rescue month saving the US economy up to \$2B per rescue
- **Performance Parameters:**
  - Over 150 satellites supported
  - Over 162,000 satellite contacts per year
  - 100% support of all major US (DoD and NASA) launches

# Combat Survivor Evader Locator (CSEL)

## Acquisition Status

- **Program Status:** System Development & Demonstration (SDD)-completed Block 1 development and testing
- **Production:** Full Rate Production begins in FY05
- **Current CSEL radio inventory:** 486 (AF)
- **Purchase Requirements:** 17,869 radios for the Air Force; 46,472 total for all services, four UHF Base Stations, and Joint Search and Rescue Center workstations
- **Contractors:** Boeing (Prime), Thales Communications, Interstate Electronics Corp.
- **Future Upgrades:**
  - Block 2: Adds Terminal Area Communications for 2-way secure line-of-sight data communications between the survivor and rescue forces
- **Fielding:** The Navy fielded CSEL on board the USS Stennis in May 04. There are plans to equip future battle groups with CSEL but a specific group has yet to be determined. The Army has begun fielding and training with the CSEL radio with the 3rd Infantry Division. The 82nd Airborne Division will deploy with CSEL later in FY05. Currently, the Air Force is scheduled to begin fielding the Combat Air Forces with CSEL in FY06



## Capabilities/Profile

- Precision anti-spoofing military GPS positioning/navigation
  - Jam-resistant operations
- Over-the-horizon (OTH)
  - 2-way secure data transmission
- OTH Low Probability of Intercept/Low Probability of Detection
- Line-of-sight voice to rescue forces
- Global coverage
- Time from transmit to Joint Search & Rescue Center (JSRC) receipt: < 5 min
- **Battery lifetime:** 4-day threshold / 21-day objective requirement
- **Radio dimensions:**
  - 3 1/4 Inches (Width)
  - 8 Inches (Length)
  - 1 3/4 Inches (Depth)
- Weight: 30.7 ounces

## Functions/Performance Parameters

- **Mission:** CSEL is an Air Force-led joint program to provide enhanced Combat Search and Rescue communication and location capabilities by replacing antiquated PRC-90/-112 survivor radios with a new over-the-horizon (OTH) end-to-end system. CSEL provides assured 24-hour, two-way, secure satellite communications along with military GPS that includes anti-jamming and anti-spoofing.
- **Performance Parameters:** CSEL uses precise GPS positioning and advanced anti-spoofing technologies to provide a reliable and accurate survivor location, an optimized waveform to reduce detectability, and increased probability of collection by national assets. In addition, CSEL utilizes the international search and rescue satellite system (SARSAT) for polar-area OTH data communications. With these new capabilities, CSEL will increase rescue force success rates in ongoing contingency operations, providing rapid and accurate location and authentication of survivor/evaders in minutes vice what could take days today.

# Counterspace Systems

## Acquisition Status

- **Program Status:**
  - **Counter Communications System (CCS):** Three systems delivered in FY04. Declared operational in Sep 2004. Systems will be upgraded in FY05-07. Definition and development of CCS Block 20 will begin in FY06
  - **Rapid Attack Identification Detection and Reporting System (RAIDRS):** Development contract awarded in Feb 05 for RAIDRS Spiral 1, which will provide ground-based capabilities to detect and geolocate interference to DoD owned and used satellite communications. IOC for RAIDRS Spiral 1 is anticipated in late FY07
- **Projected Inventory:**
  - **Counter Communications Systems:** 3 (initial capability), 1 (Block 20). Force structure studies indicate 10-14 will be ultimately required to meet warfighting needs
  - **Rapid Attack Identification and Detection System:** 36 interference detection systems, 8 geolocation systems
- **Contractors:**
  - Mission Area Primary Integrating Contractor: Northrop Grumman Mission Systems
  - CCS Developing Contract: Harris Corp
  - RAIDRS System Definition Contract: Northrop Grumman Mission Systems
  - RAIDRS Spiral 1 Development Contract: Integral Systems Inc



## Capabilities/Profile

- Air Force's primary source for critical planning, technology maturation/insertion, and system acquisition in support of Air Force space control systems, both offensive and defensive counterspace systems, and associated command and control to meet current and future military space control needs.
- **Offensive Counterspace Systems** include the means to disrupt, deny, degrade, or destroy an adversary's space systems or the information they provide which may be used for purposes hostile to US National Security interests. Current program is (CCS)
- **Defensive Counterspace Systems** include both active and passive measures to protect U.S. space systems from natural threats and enemy attempts to negate or interfere with space operations. Current program is RAIDRS.

## Functions/Performance Parameters

- **Mission:** Perform engineering and manufacturing development, integrate and procure both offensive and defensive counterspace systems in support of the Space Control mission
- **Performance Parameters:**
  - CCS is a transportable system designed to disrupt satellite-based communications, using reversible, nondestructive means
  - RAIDRS will be a family of systems being designed to detect, report, identify, locate, and classify attacks against our military space assets. RAIDRS will include detection sensors, information processors, and a reporting architecture. The RAIDRS system will detect and report attacks on both ground and space-based elements of operational space systems. It will notify operators and users, and carry information to decision-makers

# Defense Meteorological Satellite Program (DMSP)

## Acquisition Status

- **Program Status:** Operational
- **Production:** FY83-FY99
- **Satellites on Orbit:** 2 primary, 3 residuals
- **Satellites to be launched:** 4
- **Contractors:**
  - Lockheed Martin (Prime-Spacecraft)
  - Northrop Grumman (Prime-Sensors)
- **Future Upgrades:** Mini-Inertial Measurement Units for DMSPs F-17 through F-20 provide required redundancy in attitude control system.
- **Purchase Requirements:**

None

  - The DMSP program will cease operations near the middle of the next decade at the end of the final DMSP satellite's life. Thereafter, the joint DoD/DOC/NASA National Polar-orbiting Operational Environmental Satellite System (NPOESS) will fulfill DoD's requirements.



## Functions/Performance Parameters

- **Mission:** The mission of DMSP is to provide 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.
- **Performance Parameters:** DMSP utilizes sensors that measure surface and atmospheric radiation in the visible, infrared

and microwave bands. In addition, DMSP flies sensors that measure space environmental parameters. Critical regional data is broadcast directly to user terminals in theater to support tactical missions. Global data is downloaded to processing centers to support both tactical and strategic missions.

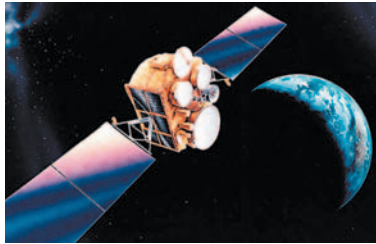
## Capabilities/Profile

KPPs	Threshold/ Baseline	Actual
Satellite Mean Mission Duration	30 mos	45 mos
Primary Sensor Global Resolution	1.5 km	1.5 km
Theater Resolution	0.3 km	0.3km

# Defense Satellite Communications System (DSCS) III

## Acquisition Status

- **Program Status:** Operational
- **Satellites on Orbit:** 5 primary, 6 residual
- **Satellites to be Launched:** 0
- **Contractors:** Lockheed Martin (Missile and Space), Sunnyvale, CA
- **Purchase Requirements:** 14 purchased; none remaining
- **Future Upgrades:**
  - Wideband Gapfiller System (WGS) and Transformational Satellite (TSAT) (Kaband capabilities)



## Capabilities/Profile

- **Key Performance Parameters**
  - **Requirement:** 30 Channels on 5 primary satellites
  - **Actual:** 30 Channels on 5 primary satellites

## Functions/Performance Parameters

- **Mission:**
  - Provides worldwide, responsive wideband communications with some anti-jam satellite capabilities supporting strategic and tactical Command, Control, Communications, & Intelligence (C3I) requirements.
- **Performance Parameters:**
  - Provide secure and high data rate Super High Frequency (SHF) communications.
  - Users include National and Senior Leadership, Defense Information System Network, Diplomatic Telecommunications Service, White House, Air Force Satellite Control Network, and Service ground mobile forces.

# Defense Support Program (DSP)

## Acquisition Status

- **Program Status:** Operational
- **Unit Assignment:** 2d Space Warning Squadron, Buckley AFB, CO
- **Current Inventory:** On-orbit inventory plus 1 satellite awaiting launch
  - DSP-23 scheduled for 1<sup>st</sup> Qtr 2006
- **Contractors:**
  - Northrop Grumman Space & Technology (Redondo Beach, CA)
  - Northrop Grumman Electronic Systems (Azusa, CA)
- **Current Upgrades:**
  - Under the Space Based Infrared System (SBIRS) program Increment 1, all DSP mission processing was consolidated at a single CONUS location; Initial Operational Capability (IOC) declared 18 December 2001, allowing the closure of overseas bases following a transition period.
  - Fielded Increment 1 Interim Mission Control Station Backup (IMCSB) in October 2002, allowing cessation of operations at the Attack Launch Early Reporting to Theater (ALERT) facility.
  - Fielded Increment 1 Integrated Training Suite September 2003, providing first-ever advanced crew training systems at Buckley AFB, CO and Vandenberg AFB, CA.
- **Future Upgrades:**
  - Transition to SBIRS space constellation begins in FY07.



## Capabilities/Profile

- **Satellites:** Classified number of geosynchronous earth orbit satellites.
- **Dimensions:** The current DSP-1 satellite is 28 feet long stowed, 32 feet long with solar panels deployed; 13 feet in diameter stowed, 22 feet with solar panels deployed; and generates 1275 watts of solar power.
- **Weight:** 5250 lbs

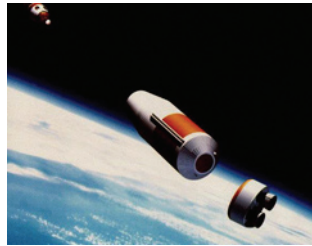
## Functions/Performance Parameters

- **Mission:** The Defense Support Program is a space based infrared satellite system providing global coverage and warning of ballistic missile launches, nuclear detonations, and other events.
- **Performance Parameters:** DSP provides:
  - Near-real time detection and reporting of missile launches against US and/or Allied forces, interests, and assets worldwide.
  - Near-real time detection and reporting of endoatmospheric (0-50km), exoatmospheric (50-300km), and deep space (>300km) nuclear detonations worldwide.

# Evolved Expendable Launch Vehicle (EELV)

## Acquisition Status

- **Program Status:**
  - Two \$500M Other Transaction Agreements for development to Boeing and Lockheed Martin (LMA)
  - Two Firm Fixed Price contracts for Initial Launch Services (ILS) FY02-06 for 26 launches
    - Reallocation of 7 Buy I launches from Boeing to LMA and rescission of Boeing west coast exclusivity clause allowing LMA to build a west coast launch facility
    - Buy I allocation post-PIA allocation - Boeing 12 launches and LMA 14 launches (FY03-10)
    - Buy II NRO west coast FY05-08- 3 Launches to LMA and 1 Launch to Boeing



- **Current Manifest:**
  - 14 launches assigned to Boeing (includes Heavy Lift Vehicle Demo)
  - 18 launches to LMA
- **Program Events:**
  - First commercial Atlas V launched August 2002; first commercial Delta IV launched November 2002
  - First Government Delta IV (Defense Satellite Communications System) March 2003
  - First heavy launch on Delta IV (Demo) December 2004

## Functions/Performance Parameters

- **Mission:** Partner with industry to develop a national launch capability that satisfies medium and heavy lift requirements for DoD, National and civil users.
  - Replaces current Delta, Atlas and Titan space launch vehicles (FY02-20)
  - Expected savings of more than 25% is consistent with 25% - 50% ORD goal
  - Purchasing firm fixed priced commercial launch services (CLS)
  - Competition for life of program
  - Enhances U.S. industrial base, poises two competitive launch vehicle families to capture increased domestic and international commercial market share
- **Launch performance:**
  - Delta IV: 3 successful launches in 3 attempts (DoD is 2 for 2) = 100%
  - Atlas V: 3 successful launches in 3 attempts (DoD has yet to launch an Atlas V mission) = 100%

## Capabilities/Profile

	Threshold	Objective
• Standardization		
• Launch Pad	Single Pad	Single Pad
• Payload interface	Std by Class	Std for all
• Mass to Orbit		
• Semi-Sync	2,500-4,725	+15%
• GTO	6,100-8,500	+15%
• Polar-LEO	41,000	+5%
• GEO	13,500	+5%
• Reliability	98%	>98%

Both EELV variants meet or exceed Operational Requirements Document (ORD) requirements

# Falcon

## Acquisition Status

- **Program Status:** New Start in FY04; Joint Air Force/DARPA program; ORS/CAV objectives combined in the joint program called Falcon
  - Operationally Responsive Spacelift Mission Need Statement (MNS) approved by Joint Requirements Oversight Council (JROC): April 2002
- **Contractors:**
  - Falcon Small Launch Vehicle - Phase IIA (System Design & Development):
    - Air Launch LLC, Reno, Nevada
    - Lockheed Martin Corp., Space Systems Co., Michoud Operations, New Orleans, La. Microcosm Inc., El Segundo, Calif.
    - Space Exploration Technologies, El Segundo, Calif.
    - Falcon Hypersonic Technologies Vehicle - Phase II (System Design & Development):
      - Lockheed Martin Corp., Lockheed Martin Aeronautics Co., Palmdale, Calif.
- **Schedule:**
  - Falcon Phase II (System Definition) was completed May 04
  - Falcon Phase II (Design & Development) began 4Q FY04
  - Falcon Phase III (System Demonstration) scheduled to begin by FY07

## Capabilities/Profile

- **Approach:** Falcon is a demonstration program designed to develop technologies using an evolutionary approach to enable a prompt global reach capability and demonstrating responsive, affordable small satellite spacelift
- **Elements:**
  - Operationally Responsive Spacelift (ORS) will develop a small launch vehicle to provide a low-cost, responsive launch capability capable of placing a small satellite into a low Earth orbit
  - Hypersonic Technology Vehicles 1, 2, & 3 will provide an affordable and low risk building block demonstration approach to validate key enabling Hypersonic Cruise Vehicle technologies. Hypersonic Cruise Vehicle technical tasks will enable an autonomous aircraft capable of taking off from a conventional military runway and capable of flying 9,000 NM in less than two hours in the 2025 timeframe.

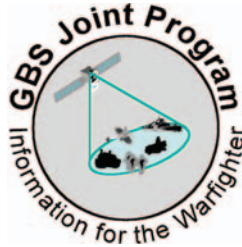
## Functions/Performance Parameters

- **Mission:** Falcon will develop and validate, in-flight, technologies to enable time-critical, prompt global reach missions while at the same time, demonstrating affordable and responsive spacelift.
- **Performance Parameters:**
  - The initial ORS demonstration, small launch vehicle, has a goal of 1,000 pounds into low Earth orbit for less than \$5M recurring (excluding payload and payload integration costs).
  - Hypersonic Technology Vehicle will be designed to carry approximately 1,000 lbs of payload with a range of approximately 9,000 NM and cross range of 3,000 NM
  - DARPA's Hypersonic Cruise Vehicle is a reusable aircraft-like system that will strike targets at 9,000 nautical miles in less than 2 hours. Its payload capability is 12,000lbs.

# Global Broadcast Service (GBS)

## Acquisition Status

- **Program Status:**
  - GBS Phase 2 passed Milestone II in November 1997
  - Program re-baselined to establish:
    - Spiral development
    - 3 incremental Initial Operational Capabilities (IOCs) (versus single IOC)
    - IOC 1 achieved 10 December 2003
- **Payloads on Orbit:** 3 GBS Phase 2 payloads on UHF Follow-on (UFO) satellites
- **Contractor:** Raytheon
- **Future Upgrades:**
  - Equivalent Phase 2 capability being designed into Wideband Gapfiller System (WGS)
  - Transitioning to Internet Protocol (IP) technology for greater flexibility and capability expansion, and supportability



- **Purchase Requirements (Phase 2):**
  - 3 primary injection facilities to upload data to satellites
  - 96 receive terminals (initial buy for joint users)
  - Services will purchase additional receive terminals (1085 units currently planned)

## Functions/Performance Parameters

- **Mission:**
  - **GBS Phase 2:** Provide efficient high data rate broadcast capability between many distributed information sources simultaneously to warfighters using small, inexpensive terminals.
- **Performance Parameters -- GBS Phase 2 satellites provide:**
  - 96 Mbps capacity (max)
  - 4 channels (max of 24 Mbps each)
  - 2 spot beams and 1 wide area beam
  - 1.25 Terabytes/day of critical data provided to the warfighters in Operations Enduring Freedom and Iraqi Freedom

## Capabilities/Profile

- **GBS Phase 2 Key Performance Parameters Include:**

<u>Requirement</u>	<u>Threshold</u>	<u>Objective</u>
Coverage	65S - 65N	6S - 65N
Spot Beams (per Sat.)	2 500NM; 1 2000NM	2 500NM; 1 2000NM
Simultaneous Uplinks	1 PIP; 1 TIP	1 PIP; 3 TIP
Security	unclas - TS/SCI	unclas - TS/SCI
Terminal Ops	F/T GRT; SRT & SSRT	F/T GRT; SRT & SSRT

## Definitions

F/T GRT - Ground Receive Terminal

SRT - Ship Receive Terminal

SSRT - Submersible Ship Receive Terminal

PIP - Primary Injection Point

TIP - Theatre Injection Point

# Global Positioning System (GPS)

## Acquisition Status

- **Program Status:** Operational
  - IIR-13 Launch: last planned IIR; successfully launched 6 November 2004
  - First IIR-M Launch: FY05
  - First IIF Launch: FY07
  - First GPS III Launch: FY13
- **Unit Assignment:** 2<sup>nd</sup> Space Operations Squadron (2SOPS), Schriever AFB, CO
- **Production:** Ongoing
- **Current Inventory:** 29 operational satellites; 24 required
- **Contractors:**
  - Block II/IIA: Boeing
  - Block IIR/IIR-M: Lockheed Martin Missiles and Space (LMMS)
  - Block IIF: Boeing
  - Block III: Not awarded
- **Future Upgrades:** Control and Space Segment Modernization, New Military and Civil Signals, User equipment upgrades, Navigation Warfare (Navwar); Block III addressing system-wide architectural concepts; Flexible Power on Blocks IIR-M & IIF will deliver higher power and anti-jam to the warfighter



## Capabilities/Profile

- **24 Satellite constellation**
- **6 Orbital Planes**
  - Altitude: ~20,180 km (~12,540 miles)
  - ~12 Hour Orbit
- **3 Segments:**
  - Space
  - Control
  - User
- **Secondary Mission**
  - US Nuclear Detonation (NUDET) Detection System (USNDS)

## Functions/Performance Parameters

- **Mission:** 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.
- **Performance Parameters:**
  - Constellation Sustainment: 24 satellites
- **Accuracy**
  - Standard Positioning Service (SPS):  $\leq 36$  meters (Horizontal),  $\leq 77$  meters (Vertical)
  - Precise Positioning Service (PPS):  $\leq 6.3$  meters (Horizontal),  $\leq 13.6$  meters (Vertical)
  - Timing:  $\leq 40$  nanoseconds
  - User accuracy is dependent on receiver type and the number, location and performance of the satellites acquired

# Joint Warfighting Space

## BACKGROUND

● To ensure United States dominance in space and provide critical support to the terrestrial warfighter, the Air Force is intensifying its focus on operationally responsive space--the ability to rapidly employ responsive spacelift vehicles and satellites; service, repair or recover on-orbit satellites; and deliver space-based capabilities wherever and whenever the warfighter requests them.

● The first step in achieving a global Operationally Responsive Space (ORS) capability is in the theater through the Joint Warfighting Space (JWS) concept. JWS will provide dedicated, responsive space capabilities and effects to the Joint Force Commander (JFC) in support of national security objectives.

● The concept seeks immediate and near-term initial operating capabilities to meet pressing Joint Force Commander (JFC) needs, and a Full Operational Capability (FOC) beyond 2010. Additionally, the Air Force envisions that JWS system capabilities will evolve as technology advances and the needs of the theater commander change.

## DISCUSSION

● In the near-term, JWS will exploit existing off-the-shelf technologies from each Service.

● JWS will enhance and incorporate space capabilities in joint training and exercises, increase space integration in the Air Expeditionary Force (AEF) and allow the JFC to take advantage of the many synergies provided by multi-Service space professionals.

● As technologies mature, JWS will bring to the JFC enhanced, dedicated capabilities that eliminate gaps in present-day space capabilities such as communications, surveillance and strike.

● The far term envisions a fully capable expeditionary force, ready and responsive to theater warfighters' needs, bringing the impact of the full spectrum of space capabilities and effects to the operational and tactical levels of war.

● When fully operational, the JWS capability will deliver responsive near space (i.e., area above the earth from ~ 65,000 to 325,000 feet altitude) and on-orbit capabilities to directly support the JFC in a theater of conflict, with emphasis at operational and tactical warfighting levels.

## MAIN POINTS

● JWS will involve:

● Exploiting existing global National Security Space capabilities more effectively via net worked space systems

● Rapidly employing dedicated, tailored space capabilities and expeditionary warrior space forces under the control of the JFC

● Implementing unambiguous command and control (C2) and operational processes/procedures to quickly provide warfighters with integrated space capabilities in a repeatable and affordable manner

● The ORS-supported Joint Warfighting Space program will redefine how future conflicts are fought and won.

# Launch & Test Range System (LTRS)

## Acquisition Status

- **Program Status:** A family of projects to modernize and sustain the LTRS to keep it operationally effective and supportable.
- **Production:** Ongoing modernization/sustainment
- **Current Inventory:** Eastern and Western Launch & Test Ranges, and associated down-range assets
- **Contractors:** Lockheed Martin, Santa Maria, CA; ITT Industries, Cape Canaveral, FL
- **Future Upgrades:** Planning & Scheduling; Communications; Weather; Metric Tracking (Radar and Telemetry); Command Destruct; Flight Safety



## Capabilities/Profile

- Launch & Test Range System (LTRS), also known as Spacelift Range System, comprised of:
  - Western Range (WR) at Vandenberg AFB, CA
  - Eastern Range (ER) at Cape Canaveral AFS/Patrick AFB, FL
- Some of the current LTRS assets still employ 1950s/1960s technology
  - Outdated, unreliable, limited responsiveness, and increasingly unsupportable equipment
  - Costly to operate and maintain, with manpower intensive architecture
- Launch and Test Range modernization program upgrades multiple operational capabilities
- Improves responsiveness, reliability and supportability

## Functions/Performance Parameters

- **Mission:** Provide responsive, reliable and cost effective launch scheduling, communications, tracking, telemetry, flight analysis and emergency termination for DoD, civil, and commercial space launches, ballistic missile tests, guided weapons and aeronautical tests; also supports space surveillance mission as a secondary mission.
- **Functions (LTRS)**
- **Operational Capabilities):**
  - Metric Tracking (Global Positioning System, Radar, and Telemetry)
  - Command Destruct
  - Flight Safety
  - Communications
  - Weather
  - Surveillance
  - Planning and Scheduling
  - Centralized Control and Automation
- **Performance Parameters:**
  - Ensure acceptable risk to public safety
  - Provide trajectory coverage for current and forecasted launches: ER: Launch trajectories from 34° to 112°; WR: Launch trajectories from 153.6° to 281°
  - Support launches with 24 hours between the close of the first launch window and the opening of the second

# Medium Launch Vehicles (MLV)

## Acquisition Status

- **Program Status:** Active
- **Production:** Complete -- last launch scheduled for FY07
- **Inventory:**
  - One Atlas IIIB medium launch vehicle mission remains with flyout planned for late CY05 (National Reconnaissance Office satellite).
  - 9 Delta II medium launch vehicle missions remain with flyout planned for FY07 (Seven planned [GPS] satellites, one NRO, and one planned DARPA/Navy Research Lab/Air Force satellite).
- **Contractors:**
  - Atlas IIIB: Lockheed Martin, Denver, CO
  - Delta II: Boeing, Huntington Beach, CA
- **Future Upgrades:** None planned
- **Purchase Requirements:**

All launch vehicles have been manufactured and are either in storage or are being processed for launch.

Need funding for Global Positioning System (GPS) IIRM-8 launch vehicle needed to support 2QTR FY07 launch



## Capabilities/Profile

- **Lift capability:**
  - Atlas IIIB: capable of lifting 9,900 lbs to geosynchronous transfer orbit
  - Delta II: capable of lifting 4,000 lbs to geosynchronous transfer orbit
- **Launch Sites:**
  - Atlas IIIB: Launch Complex 36B Cape Canaveral, FL
  - Delta II: Launch Complex 17 A/B, Cape Canaveral, FL

## Functions/Performance Parameters

- **Mission:**
  - The Atlas IIIB launch vehicle provides medium lift orbital insertion for the National Reconnaissance Office.
  - Delta II launch vehicles provide medium lift orbital insertion for GPS and other satellites.
- **Launch performance (DoD launches only):**
  - Delta II: 46/47 successful launches = 98%
  - Atlas II: 14/14 successful launches = 100%

# Military Satellite Communication (MILSATCOM) Terminals



DSCS

GPS receive suite

Spitfire

GMT

SMART-T

## Acquisition Status

### • Program Status:

Development, procurement, upgrade and sustainment efforts:

- Develop, produce & field Ground Multi-band Terminals (GMT)
- Develop, produce & field Family of Advanced Beyond Line-of-Sight Terminal (FAB-T) including High Data Rate (HDR) airborne increment to support Transformational Communications for the Airborne Intelligence, Surveillance, Reconnaissance (ISR) community
- Develop, produce & field Laser Communications Terminal
- Develop, produce & field High Data Rate (HDR) ground terminals
- Field and sustain UHF Demand Assigned Multiple Access (DAMA) Airborne Integrated Terminal (AIT)
- Sustain Single-Channel Anti-Jam Man Portable (SCAMP) and Air Force Command Post Terminals
- Sustain Secure Mobile Anti-Jam Reliable Tactical - Terminal (SMART-T)
- Sustain UHF Demand Assigned Multiple Access

(DAMA) ground terminals (Multi-Band Multi-Mode Radio [MBMMR] and Spitfires)

- Upgrade/Modify Defense Satellite Communications System (DSCS) Terminals
- **Current AF Inventory (within Program Element 0303601F):** Includes ground, fixed, transportable and airborne:
  - Narrowband/UHF (AIT, MBMMR, Spitfire): 1246 total
  - Wideband/SHF (DSCS, GBS): 136 total
  - Protected/EHF (SCAMP, SMART-T): 96 total
- **Contractors:** Multiple Primes
  - Boeing (CA)
  - Raytheon (MA, FL, IN, VA)
  - Harris (FL)
  - Rockwell (IA)
  - BAE (NH)
  - Lockheed Martin (CA)
  - Northrop Grumman (CA)

## Capabilities/Profile

- Satellite communications terminals for:
  - UHF DAMA air & ground
    - Airborne Integrated Terminal; Multi-Band Multi-Mission Radio; Spitfire
  - Wideband SHF Connectivity
    - Global Broadcast Service (GBS) Receive Suites (RS) and Theater Injection Points (TIP); Ground Multi-band Terminal (GMT); Defense Satellite Comm System (DSCS)
  - Protected EHF (and AEHF) Connectivity
    - Family of Advanced Beyond line-of-sight Terminals (FAB-T)
    - Army developed Secure Mobile Anti-jam Reliable Tactical Terminal (SMART-T)
- Transformational Communications (will support both Wideband and Protected)
  - Laser Communication Terminal (Lasercom)
  - High Data Rate (HDR) terminal modifications--derivatives of FAB-T and ground terminals to support Intelligence, Surveillance, and Reconnaissance (ISR) community

## Functions/Performance Parameters

- **Mission:** Develop, procure, deploy and sustain multi-band SATCOM terminals utilized by Air and Space Expeditionary Forces (AEF), SIOP, combatant commanders, and other users to communicate over current and emerging military and commercial satellite systems.

- Terminals will support the Transformational Communications Architecture

- **Performance Parameters:** Communications connectivity in bands:

- Narrowband/UHF: Secure, mobile, DAMA
- Wideband/SHF: Secure, long-haul, tactical and strategic
- Protected/EHF: Secure, nuclear hardened, Anti-Jam/ Anti-Scintillation, Low Probability of Intercept, tactical and strategic

# Military Strategic and Tactical Relay (Milstar)

## Acquisition Status

- **Program Status:** Operational
- **Satellites on Orbit:** 5
  - 2 Block I satellites with Low Data Rate (LDR), 3 Block II satellites with both Low and Medium Data Rate (LDR/MDR)
- **Satellites to be Launched:** 0
- **Contractors:**
  - Lockheed Martin, Missiles & Space (Prime)
  - Boeing & Northrop Grumman (Major Subcontractors)
- **Future Upgrades:** Advanced EHF (AEHF) communications satellites will replenish Milstar satellites. Transformational Satellite (TSAT) will follow AEHF.
- **Purchase Requirements:** None remaining



## Capabilities/Profile

- **System Capabilities and Characteristics Include:**
  - **Connectivity – Coverage:** Worldwide between 65 degrees north & south; 24 hours/day
  - **Connectivity – Data Rates and Capacity/Satellite:**
    - **Low Data Rate (LDR):** 75 to 2400bps data rates available; 0.4 Mbps theoretical total throughput
    - **Medium Data Rate (MDR):** 4.8 to 1,544 Kbps data rates available; 40 Mbps theoretical total throughput
    - **Bands:** UHF and EHF/SHF with crossbanding; crosslink between satellites
  - **Protection:** Anti-jam, anti-scintillation, anti-intercept/detection, and satellite hardening to provide assured communications for networks supporting critical functions
  - **Access and Control:** Provide users ability to plan, control and reconfigure resources.
  - **Interoperability:** Per appropriate MIL-STDs

## Functions/Performance Parameters

- **Program will specifically:**
  - Maintain operations support for satellites 1, 2, 4, 5 & 6 (#3 did not achieve useful orbit)
  - Complete upgrade of mission control facilities to support medium data rate operations
- **Performance Parameters:** Low Probability of Intercept/Detection (LPI/D), Anti-Jam (AJ), and Anti-Scintillation (AS) protected communications at low and medium data rates (LDR and MDR), Crosslinks

# National Polar-orbiting Operational Environmental Satellite System (NPOESS)

## Acquisition Status

- **Program Status:** Acquisition & Operations phase
- **Production:** FY02-FY16
  - RDT&E funds NPOESS C1 and C2: FY02-FY11
  - Procurement funds NPOESS C3 through C6: FY08-FY16
- **Current Inventory:** None
- **Projected Inventory:** 6
- **Contractors:**
  - Northrop Grumman Space Technology (Prime)
  - Raytheon, Boeing Satellite Systems, Ball Aerospace, and ITT (Instruments)
- **Future Upgrades:** TBD



## Functions/Performance Parameters

• **Mission:** NPOESS is a tri-agency program (DoD, DOC, and NASA) that will provide military commanders and civilian leaders assured timely, high quality environmental information to effectively employ weapon systems and protect national resources (safety, life, and property). The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use for a period of at least 10 years.

• **Performance Parameters:** NPOESS will fly a suite of instruments that will provide visible and infrared cloud-cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. In all, NPOESS will measure 54 distinct environmental parameters such as soil moisture, cloud levels, sea ice, ozone, ionospheric scintillation, and more.

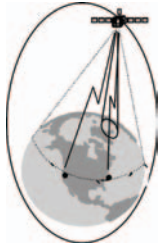
## Capabilities/Profile

KPPs	Threshold
Vertical Moisture	Surface to 600mb: > of 20% or 0.2g/kg (clear/cloudy)
Temperature Profile	Surface to 300mb: +/- 1.6K/km (clear) Surface to 700mb: +/-2.5K/km (cloudy)
Imagery refresh*	≤ 4 hrs avg; ≤ 6hrs max; at least 75% of revisit times ≤ 4hrs at any location
Sea Surface Temp	Measurement Uncertainty - clear; +/- 0.5 deg C Horiz. Cell Size - Nadir, clear; 1km
Sea Surface Winds	Measurement Accuracy, Speed; > of 2m/s or 10%
Soil Moisture	Sensing Depth: Surface (Skin Layer: -0.1cm)
Data Access	Capable of selective denial (except ARGOS and SARSAT)
Interoperability	100% of top-level IERs designated critical
<b>Schedule</b>	
Milestone I: Mar 97	
Key Decision Point (KDP) C: Aug 02	

# Polar Military Satellite Communications (MILSATCOM)

## Acquisition Status

- **Program Status:** The Polar MILSATCOM program consists of 3 Interim Polar (IP) Low Data Rate (LDR) EHF communications packages hosted on 3 classified satellites. The program is in the System Development and Design phase to design, test, and launch the last two packages. The first IP package was a late add-on to a classified host satellite that was made available in FY98. Packages 2 and 3 will be available in FY04 and FY06, respectively
- **Satellites on Orbit:** 1 IP package
- **Satellites in Development:** 2 IP packages
- **Contractors:** Classified
- **Future Upgrades:** The next generation Enhanced Polar (EP) capability will consist of extended Data Rate (XDR) packages compatible with the Advanced Extremely High Frequency (AEHF) system on a classified host (circa 2013)



## Capabilities/Profile

- **Coverage:** North polar region - 24 hours/day required
- **Compatibility:** IP is compatible with Milstar Low Data Rate (LDR) service and the (AEHF) system in Milstar backwards compatibility mode. EP will be fully AEHF compatible.

## Functions/Performance Parameters

- **Mission:** Provides protected communications supporting peacetime, contingency, and wartime operations in the north polar region. IP supports limited Independent Submarine Operations & Maritime Task Force Operations and Intelligence Collection/Dissemination Activities. The EP system will provide increased capabilities to the same activities and extend support to Strategic Forces and Special Operations Forces
- **Performance Parameters:** IP has no crosslinks and provides the same data rates as Milstar LDR: 75-2400 bps with Low Probability of Intercept/Detection (LPI/D), Anti-Jam (AJ), and Anti-Scintillation (AS) protection; and the EP system is expected to provide the full AEHF capability

# Rocket Systems Launch Program (RSLP)

## Acquisition Status

- **Inventory:** Over 1,250 stored motors
- **Contractors:**
  - **Orbital/Suborbital (Long-range):**
    - Orbital Sciences (Phoenix, AZ)
    - **Sounding Rocket:**
      - Coleman Research (Orlando, FL)
      - Lockheed Martin (Denver, CO)
      - Orbital Sciences (Phoenix, AZ)
      - Space Vector (Chatsworth, CA)
  - **Advisory & Assistance:**
    - Northrop Grumman (Albuquerque, NM)



## Capabilities/Profile

- **Store Deactivated ICBM Motors:**
  - \$3 Billion (\$FY02) in Launch Assets
  - Perform Aging Surveillance on stored motors
- **Provide Cost Reimbursable Launch Services for DoD Flight Tests:**
  - Provide Payload Integration Services
  - Refurbish and Transport Motors/Boosters
  - Conduct Launch

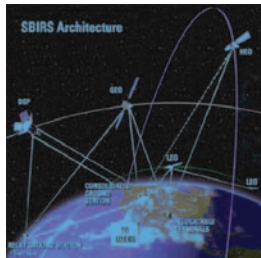
## Functions/Performance Parameters

- **Mission:** RSLP will maintain active control and management of Air Force excess ballistic missile assets and will provide, on a cost reimbursable basis, flight test support and operations for national R&D requirements.
- **Performance Parameters:**
  - Single DoD agency providing launch vehicle support for the three services on cost reimbursable basis
  - Over 650 launches since 1962
  - Does \$75 Million (\$FY02) in reimbursable launch business per year - represents about \$40 million in launch cost-avoidance for our customers

# Space Based Infrared System High (SBIRS High)

## Acquisition Status

- **Program Status:** SBIRS High is in System Development and Demonstration (SDD). Increment 1 ground segments at Mission Control Station (MCS) and Interim MCS Backup (IMCSB) are operational.
- **Unit Assignment:** 2d Space Warning Squadron, Buckley AFB, CO
- **Projected Inventory:**
  - SBIRS High consists of:
    - 4 Geosynchronous Earth Orbit (GEO) satellites plus a fifth (spare) GEO satellite
    - 2 Sensors in Highly Elliptical Orbit (HEO)
    - Increment 2 MCS
    - MCS Backup
    - 9 GEO-compatible Multi Mission Mobile Processors (M3Ps)
    - 5 Relay Ground Stations (RGS)
- **Contractors:**
  - Lockheed Martin Space Systems (Sunnyvale, CA) (prime)
  - Northrop Grumman Electronic Systems (Azusa, CA) (subcontractor)
- **Current Upgrades:**
  - Develop Increment 1-compatible M3Ps to replace Defense Satellite Program legacy Mobile Ground Terminals (MGTs)



- Develop advanced Increment 2 ground software to be fielded in all SBIRS High ground systems
- Develop permanent, fully-capable Increment 1 MCS Backup
- Develop next-generation space sensors to provide replacements to aging DSP fleet and provide enhanced mission capabilities
- Upgrade RGS compatible with SBIRS HEO and GEO space systems

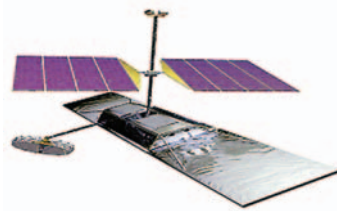
## Functions/Performance Parameters

- **Mission:** 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.
- **Performance Parameters:** SBIRS enables global, simultaneous surveillance, tracking and targeting of multiple objects in multiple areas of responsibility (AORs) and surveillance of infrared sources of operational, intelligence, and national significance.

# Space Radar (SR)

## Acquisition Status

- **Program Status:** Acquisition Phase A (Study Phase), Concept and Architecture Development
  - OSD SBR Roadmap published in Feb 02
  - Mission Need Statement approved by Air Force and Joint Requirements Oversight Councils (AFROC, Oct 01; JROC, Apr 02)
  - System Engineering and Integration (SE&I) contract awarded 25 Sep 03
  - Ground Moving Target Indication (GMTI) Analysis of Alternatives (AoA) began in Oct 01, interim results were reported in Nov 02; AFROCC review, Nov 03; Final Report, Mar 04
  - Initial Concept of Operations (CONOPS) and Initial Capabilities Document (ICD) approved by JROC, 29 Sep 03; Intelligence Community (IC) Mission Requirements Board review complete, 25 Nov 03
  - SECDEF and DCI signed memorandum committing to pursue a common space radar for DOD and IC, 13 Jan 05
- **Contractors: (Current)**
  - Prime Contractors: Lockheed Martin (LM), Northrop Grumman (NG)
  - Major Subs: Harris, NGE, Raytheon, General Dynamics (Veridian)
  - Systems Engineering & Integration Contracts: SAIC (Prime), Major Subcontractors LM, Partners in Air & Space, SPARTA, Steller, BD Systems, General Dynamics-AIS



- **Schedule:**
  - Key Decision Point (KDP) -A successfully met at 10 Jul 03 Defense Space Acquisition Board (DSAB) allowing SBR to proceed into the study phase
  - System Engineering and Integration (SE&I) contract awarded Sep 03
  - Request for Proposal (RFP) for Concept Development, Jan 04
  - Alternate Systems Review (ASR), Sep 04
  - System Readiness Review (SRR), Jun 07
  - System Design Review (SDR), Jun 08
  - KDP-B, FY08
  - Initial Launch Capability (ILC): Accelerated radar demo satellite, CY2008; SR ILC, FY 2015
  - Changed structure and focus of Program Office to increase collaboration with stakeholders from the DoD and IC
  - Radar satellite demonstrator to be launched in CY2008-- will validate cost and technology maturity and demonstrate CONOPS and user utility
  - AF restructuring program to address Congressional concerns and DoD/IC differences in requirements

- Preserve SR FY15 ILC option while working Interface Control Document revisions with DoD/IC team

## Capabilities/Profile

- **Payload:** Satellites notionally equipped with Electronically Scanned Array (ESA) to provide:
  - Synthetic Aperture Radar (SAR) Imagery
    - Surface Moving Target Indication (SMTI)
    - High Resolution Terrain Information (HRTI)
- **Tasking, Collection, Processing, Exploitation, Dissemination:** Dynamic tasking capability including theater-based tasking, machine-to-machine interfaces, timely data dissemination, cross-cueing to airborne ISR to complement tracking, and data processing compliant with communications links and imagery processing standards
- **Launch Vehicle:** Evolved Expendable Launch Vehicle

## Functions/Performance Parameters

- **Mission:** Radar in space will be essential to providing the deep look, all weather, day and night surveillance and reconnaissance capabilities required by both the national intelligence and joint warfighters. SR will provide rapid Battlespace Dominance and Operational Decision Superiority through:

- Day/night, all-weather, globally persistent surveillance with SAR imaging, HRTI and SMTI from Space
- Deep-look, wide area surveillance of denied areas allowing for responsive, precision targeting for the warfighter

- **Performance Parameters:**

Exact surveillance capabilities and numbers of spacecraft are subject to technical tradespace considerations--These considerations will be evaluated as part of the ongoing concept and architecture study phase.

# Space Surveillance Network (SSN)

## Acquisition Status

- **Program Status:** Operational
- **Unit Assignment:** Air Force space operations units worldwide
- **Current Inventory:** 8 dedicated sensors (1 space-based), 8 collateral sensors, and 14 contributing sensors
- **Projected Inventory:** 8 dedicated, 8 collateral sensors, and 14 contributing sensors
- **Contractors:**
  - Northrop Grumman (Redondo Beach, CA--Space Based Space Surveillance)
  - ITT Industries (Colorado Springs, CO--Space Situational Awareness Initiatives, Eglin Service Life Extension Program)
  - Lockheed Martin (Colorado Springs, CO--Space Situational Awareness Initiatives)
  - MIT/Lincoln Lab (Lexington, MA--Haystack Upgrade)
  - Northrop Grumman Colorado Springs, CO—Ground-based Electro Optical Deep Space Surveillance (GEODSS)
  - TBD (Orbital Deep Space Imager)
- **Current Upgrades:**
  - (GEODSS) charge coupled device (CCD) camera; replacement of telescope and dome controllers
  - Eglin Radar Service Life Extension Program (SLEP)
  - Haystack Ultra-wideband Satellite Imaging Radar (HUSIR) Upgrade



- Space Situation Awareness Command and Control (C2) Initiatives
- Space-Based Space Surveillance (SBSS) System
- Orbital Deep Space Imager (ODSI)
- Air Force Space Surveillance System (AFSSS) Fence S-Band Replacement

## Capabilities/Profile

- **Ground Sensors (dedicated):** 4 Optical and 3 Radar
- **Ground Sensors (other):** 8 collateral; 14 contributing sensors
- **Satellites (dedicated):** 1 Midcourse Space Experiment/Space-Based Visible (MSX/SBV)
- **Range:** Near Earth object tracking to 6000km, deep space tracking to 40,000km from ground-based sensors
- **Dimensions:** Varies by sensor/site; Very High Frequency Fence: 30 cm (Near Earth); GEODSS: 30 cm (Deep Space)

## Functions/Performance Parameters

- **Mission:** Contributes to space situation awareness by detecting, tracking, identifying, characterizing, and monitoring all man-made objects in Earth orbit. The SSN operates a worldwide network of dedicated, collateral, and contributing electro-optical and radar sensor systems integrated with required C2, data processing, and analysis functions
- **Performance Parameters:** Provides awareness of all space events and activities such as:
  - Satellite attack warnings and satellite overhead threat warnings
  - New foreign launches and space treaty monitoring
  - Space object break-ups or decays
  - Satellite maneuvers
  - Space object identification mission payload assessment (SOI/MPA)
  - Supports DoD, NRO and NASA space operations
  - The space object catalog contains over 10,000 objects. Approximately 80% are near Earth objects; 20% deep space. Much of this data is shared with the United Nations, NASA, U.S. allies, and foreign launch agencies.

# Space Test Program (STP)

## Acquisition Status

- **Experimental Satellite System (XSS)-11 mission on Minotaur Launch Vehicle:** Develop autonomous mission planning, rendezvous and proximity operations.
- **Communication/Navigation Outage Forecasting System (C/NOFS) mission on Pegasus in FY05:** Forecast ionospheric scintillations that degrade communication, navigation and surveillance systems
- **STP-EELV mission with first Evolved Expendable Launch Vehicle (EELV):** Secondary Payload Adapter (ESPA) in FY06, which will launch 6 experimental satellites



## Capabilities/Profile

- Conducts space missions for DoD space research community: Approx \$40M RDT&E program
- Acts as the primary interface between NASA shuttle and International space station programs and the DoD
- Performs risk reduction through direct flight test of prototype components
- Responsible for all secondary payload flight opportunities on Air Force launch vehicles
- Flight tests new space system technologies
- Improves operational capabilities by characterizing environment, sensor physics
- Develops and tests advanced launch vehicle technologies and capabilities

## Functions/Performance Parameters

- Performs mission design, procures launch services as well as spacecraft -- conducts on-orbit operations
- R&D Experiments selected annually via the DoD Space Experiments Review Board (SERB)
- 20% of payloads fly as secondary payloads
- 50% fly on the Shuttle, Space Station, or Russian Progress vehicles
- 30% fly on dedicated free-flying satellites

# Transformational Satellite (TSAT) Communications System

## Acquisition Status

- **Program Status:** Risk Reduction and Design Development
- **Satellites on Orbit:** 0
  - First Launch 2Q FY13
- **Satellites in Development:** 6 (to assure the required 5-satellite constellation is achieved)
- **Contractors:**
  - Risk Reduction and Preliminary Design Development: 2 Contractor teams, one led by Lockheed Martin; the other by Boeing Satellite Systems
- **Future Upgrades:** None currently planned
- **Purchase Requirements:** 6 satellites plus ground-based control and networking systems. Individual Services modify or acquire terminals.



## Capabilities/Profile

### • Key Performance Parameters Include

- **Connectivity - Coverage:** Worldwide between 65 degrees north & south, 24 hours/day

- **Connectivity - Capacity/Satellite:** Threshold: 5.7 Gbps (Obj: 37 Gbps)

- **Connectivity - Nuclear Protection:** Provide assured communications for networks supporting critical functions

- **Operational Management:** Provide users ability to plan, control, and reconfigure resources

- **Information Assurance:** Protect against degradation, disruption, denial, and unauthorized access/monitoring

- **Interoperability:** Support networking among users from all operational elements

- **Operational Suitability:** Provide networking per the Transformational Communications Architecture based on Internet Protocol version 6

## Functions/Performance Parameters

- **Mission:** Replenishes/augments capabilities to be provided by the AEHF and WGS systems. (Note: WGS was to have been followed by the wideband-only Advanced Wideband System [AWS]. AWS has been recast into the new wideband/protected TSAT system). Will use Internet Protocol-based packet switching, laser crosslinks, and both Radio Frequency, and lightwave (laser) communications
  - Provides more capacity
  - Provides more coverage/communications options
- **Performance Parameters:**
  - Low Probability of Intercept (LPI)
  - Low Probability of Detect (LPD)
  - Maximum protected Data Rate to 45 Mbps, an increase over the AEHF rate of 8 Mbps
  - Throughput increases to more than 10 times the total of AEHF and WGS capacities

# Wideband Gapfiller System (WGS)

## Acquisition Status

- **Program Status:** Production
  - Satellite 1 launch in March 2006
  - Satellite 2 launch in September 2006
  - Satellite 3 launch in February 2007
  - Satellite 4 launch in FY 2009
  - Satellite 5 launch in FY 2010
- **Satellites on Orbit:** 0
- **Satellites in Development:** 5
- **Contractors:**
  - WGS 1-3: Boeing
    - Contract Awarded January 2001
    - Sole Source, FAR Part 12
    - Development & Production
- **Future Upgrades:** Transformational Satellite (TSAT) system
- **Purchase Requirements:** 3 Satellites currently. New contract in progress to acquire 2 additional satellites to be launched in FY09 and FY10



## Capabilities/Profile

### Key Performance Parameters:

- **Converge:** 24 hours between 65 degrees North & South
- **Capacity/Satellite:** 2.1 Gbps
  - Satellites 4 and 5 will contain capability to pass 274 Mbps for Intelligence, Surveillance, & Reconnaissance users
- **Interoperability:** Interoperable with legacy Defense Satellite Communications System (DSCS) and Global Broadcast System (GBS) terminals

## Functions/Performance Parameters

- **Mission:** High data rate satellite broadcast system to bridge gap between current systems (DSCS & GBS) and the TSAT system that has subsumed the conceptual Advanced Wideband System.
- **Performance Parameters:** Wideband communications at X and Ka Band frequencies
  - Two-way X Band
  - New two-way Ka Band
  - Ka broadcast
  - ~12x throughput capacity of most advanced DSCS III satellite

AIRCRAFT



# Managing Aging Aircraft

## BACKGROUND

Cost: corrosion maintenance for all Air Force aircraft in 1997 around \$795 million, current estimate is over \$1 billion annually.

- Average aircraft fleet age is over 23 years and rising
- KC-135E average age 45 yrs – with severe engine strut corrosion on 132 aircraft
  - Expanded Interim Repair accomplished on all but 29; still requires remanufactured strut after 5 years
- A-10 average age: 23 years
  - Service life extension program for 356 aircraft on track -- Inspection of wing cracks affecting 247 aircraft now complete
- F-15A-D average age: 24 years
  - Maintenance man-hour per flying hours are up 113% over 12 yrs
  - High occurrence of horizontal and vertical stab cracking or water intrusion -- restriction of Mach 1.5/660 knots placed on the fleet until modified
- C-130E average age: 40 years
  - Center wing box cracks found on 99 C-130E aircraft -- flight restrictions imposed on aircraft over 45,000 hours

## DISCUSSION

- Aging Aircraft RDT&E program –supports research and development projects to address aging aircraft problems Cost: approximately \$140M over the next six years
- Cost: \$3.7B in FY05 to perform depot level repair through the Depot Purchased Equipment Maintenance program. A large portion of depot maintenance costs go toward structural repairs, the prevention and treatment of corrosion on aircraft structures, and to repair or replace aircraft wiring.
- Cost: \$507M in FY05 to study aircraft and engine safety of flight and reliability and maintainability improvements through the engine Component Improvement (CIP) and Sustaining Engineering programs.

- Cost: \$2.8B to extend the service life and improve reliability on C-5, A-10, F-16, & F110 and F100 engines
- Aero Advisory Group formed (merger of Aging Aircraft and Engine Advisory Group) to ensure synchronization, timing, linkages (i.e. Eng & A/C Mods in sync), and to eliminate redundancy.
- Air Force Fleet Viability Board (AF FVB) created to establish a continuous, repeatable process for conducting fleet assessments. The AF FVB completed its first assessment, of the C-5A, in July of 2004, and is currently studying the KC-135 fleet.
- RAND Corporation contracted to identify, understand and evaluate challenges associated with retaining aging aircraft.
  - For last 3 years, conducted aging aircraft project reviewing both the Air Force's and commercial airline aging fleet experiences.
  - From the study developed age-based fleet structure and cost forecasting tools; and developed preliminary tools to forecast future availability levels.
  - Presently evaluating workload growth effects on Air Force-wide mission readiness and maintenance and modification expenditures over next 2 or 3 decades.
- Air Force is investing in spare parts, automating certain depot tasks, initiating new repair procedures, modifying subsystems, and making material substitutions to increase reliability across many weapon systems.

## MAIN POINTS

- As Air Force fleets age they become more difficult and expensive to maintain requiring innovative maintenance techniques and the ability to foresee problems. In the long term these systems must be recapitalized to ensure a viable future force.

# AC-130H Spectre

## AC-130U Spooky

### Acquisition Status

- **Program Status:** Sustainment
- **Current Inventory:** 13-130U, 8 130H
- **Unit Assignment:** Hurlburt Field, FL
- **Contractors:** Boeing, Integrated Weapon System Support (IWSS) 130U
- **Future Upgrades:** Direct Infrared Counter Measure (DIRCM); C-130 Avionics Modernization Program (AMP); Common Avionics Architecture for Penetration (CAAP); ALE-47 Chaff & Flare System; High Power Fiber Optic Towed Decoy (HPFOTD); RF Low Band Jammer



### Capabilities/Profile

- **Service Ceiling:** 21,000 Feet
- **Combat Range:** Unlimited (air refuelable)
- **Armament:** AC-130H/U 40mm cannon, 105mm cannon; AC-130U: 25mm gun
- **Crew Complement:** 13 - five officers (pilot, co-pilot, navigator, fire control officer, electronic warfare officer); eight enlisted (flight engineer, loadmaster, low-light TV operator, infrared detection set operator, four aerial gunners)
- **Dimensions:**
  - 132 Feet (Wing Span)
  - 99 Feet (Length)
  - 38 Feet (Height)
- **Weight:** 155,000 Pounds (Gross Weight)

### Functions/Performance Parameters

- **Mission:** Gunship's primary missions are close air support, air interdiction and armed reconnaissance. Other missions are perimeter and point defense, escort, landing, drop and extraction zone support, forward air control, limited command and control, and combat search and rescue.
- **Performance Parameters:**
  - Power Plant: Four Allison T-56-A-15 turboprop engines
  - Thrust: 4,910 shaft horsepower each engine
  - Speed: 289 miles per hour (464 kilometers per hour) at sea level

# Airborne Laser (ABL)

## Acquisition Status

- **Program Status:** Being developed by the Missile Defense Agency (MDA)
- **Unit Assignment:** TBD
- **Production:** FY08-FY15
- **Current Inventory:** One test aircraft
- **Projected Inventory:** TBD
- **Contractors:**
  - Boeing (Airframe & BMC4I)
  - Lockheed Martin (Optics)
  - Northrop Grumman (Laser)
- **Development:** Program transferred to the MDA in FY02 for development and will return to the Air Force for procurement and operation.
- **Future Upgrades:** TBD



## Capabilities/Profile

- **Service Ceiling:** 45,000 Feet
- **Combat Range:**
  - Max laser range against BMs-hundreds of km
  - A/C: unlimited with air refueling
- **Armament:** Megawatt class high-energy laser
- **Dimensions:**
  - 211 Feet, 5 Inches (Wing Span)
  - 228 Feet, 9 Inches (Length)
  - 63 Feet, 8 Inches (Height)
- **Weight:** 800,000 Pounds (Gross Take Off Weight)

## Functions/Performance Parameters

- **Mission:** Air-based component of the Ballistic Missile Defense System's Boost Phase Defense Segment that will acquire, track and kill ballistic missiles in their boost phase thus protecting US deployed forces, US allies, friends and areas of vital interest from ballistic missile attack.
- **Functions:** On board sensors detect boosting missile, BMC4I systems pass early warning launch & impact data to Ballistic Missile Defense System Elements and combatant commanders, and high energy laser destroys the targets.
- **Performance Parameters:** Flight operations above clouds (~40,000 ft), detect BMs at long ranges (hundreds of km), and kills them within seconds. Megawatt class Chemical Oxygen-Iodine Laser (COIL) with full laser fuel load can kill 20-40 BMs.

# A/OA-10 Thunderbolt II

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignments:** Active: Pope AFB, NC; Nellis AFB, NV; Osan AB, Korea; Davis-Monthan AFB, AZ; Eielson AFB, AK; Eglin AFB, FL; Spangdahlem AB, GE; Guard/Reserve: Barnes, MA; Bradley, CT; Willow Grove, PA; Martin State, MD; New Orleans, LA; Battle Creek, MI; Boise, ID; Whiteman, AFB, MO; Barksdale, AFB, LA
- **Current Inventory:** 356
- **Contractors:**
  - Fairchild Republic (Airframe)
  - General Electric (Propulsion)
  - Lockheed Martin (Sustainment)
- **Future/Ongoing Upgrades:** Integrated Flight and Fire Control Computer, Counter-Measures Systems, Precision Engagement (J-Series/Smart Weapons, Digital Stores Management System, Joint Tactical Radio System (Enhanced Position Location Radio System & Link-16 Data links), and Targeting Pod integration), Service Life Enhancement Program (SLEP).



## Capabilities/Profile

- **Service Ceiling:** 37,000 Feet
- **Combat Range:** 400 NM; 5 hours duration (unrefueled)
- **Armament:** 500lb & 2,000lb General Purpose/Cluster/Laser-Guided Bombs, E/O & IR Maverick Missile, Sidewinder Missile, 2.75" Rockets, Covert/Overt Illumination Flares, 30mm Armor-Piercing and High-Explosive Incendiary Rounds
- **Targeting Pod:** Some aircraft have been modified to employ Litening targeting pods
- **Dimensions:**
  - 57.4 Feet (Wing Span)
  - 53.4 Feet (Length)
  - 14.8 Feet (Height)
- **Weight:** Over 50,000 Pounds fully loaded

## Functions/Performance Parameters

- **Mission:** The USAF primary Close Air Support (CAS) platform. Secondary roles include: Air Interdiction, Forward Air Control (Airborne), and Combat Search and Rescue and Special Operations Support. Designed specifically for battlefield support of engaged ground forces. The speed, range, loiter time and physical toughness of the airframe provide an outstanding asset to protect friendly forces and devastate enemy forces. The 30mm Gatling gun was produced specifically to destroy armored vehicles and hardened support equipment. The pilot is protected by a "titanium bathtub" manufactured to withstand repeated punishment while the airframe and power plant incorporate redundant systems designed to ensure airworthiness if engaged by enemy anti-aircraft guns or missiles. Future Precision Engagement package will allow day/night precision attack with targeting pods, GPS guided weapons and digital battlefield connectivity for all missions.
- **Performance Parameters:**
  - Top Speed: 450 KCAS/0.75 Mach

# B-1 Lancer

## Acquisition Status

- **Program Status:** Sustainment, Conventional Modifications
- **Unit Assignment:** Dyess AFB, TX; Ellsworth AFB, SD
- **Production:** Production complete in 1988
- **Current Inventory:** 67
- **Contractors:**
  - Boeing (Airframe)
  - General Electric (Propulsion)
  - Northrop Grumman (Radar)
- **Future Upgrades:** In production: Avionics Computers, WCMD, JSOW, JASSM. Planned: JASSM-ER, Defensive Upgrade, Radar, Situational Awareness, Datalink, on-board diagnostics, and inertial navigation upgrade



## Capabilities/Profile

- **Service Ceiling:** Over 30,000 Feet
- **Combat Range:** Intercontinental (unrefueled)
- **Armament:** Mk-82 (500-lb) & Mk84 (2000-lb) general-purpose bombs, Mk-62 & Mk 65 mines, CBU-87/89/97 cluster munitions and CBU-103/104/105 wind corrected equivalents, GBU-31 (2000-lb) JDAM. Initial capability for AGM-154 (JSOW) and AGM-158 (JASSM) in October 2004. Largest ordnance load-out of any U.S. aircraft (54,000 lbs).
- **Dimensions:**
  - 137 Feet (Wing Span, wings forward)
  - 79 Feet (Wing Span, wings aft)
  - 146 Feet (Length)
  - 34 Feet (Height)
- **Weight:** 477,000 Pounds (Max Weight)

## Functions/Performance Parameters

- **Mission:** Long-range, high speed, large payload Global Attack capability. The B-1 provides flexibility of being employed from outside or from within the theater of operations. The B-1's high-speed capability, makes force packaging with other strike assets possible. Conducts all-weather, deep strike and night air-to-surface attack.
- **Performance Parameters:**
  - Top Speed: 900-plus mph (Mach 1.2 at sea level)
  - Payload:
    - 84 general purpose bombs or naval mines
    - 30 cluster bombs (CBU-87/89/97/103/104/105)
    - 24 JDAM (GBU-31)
    - 12 JSOW (AGM-154)
    - 24 JASSM (AGM-158)

# B-2 Spirit

## Acquisition Status

- **Program Status:** Post-production Support
- **Unit Assignment:** Whiteman AFB, MO
- **Current Inventory:** 21 Block 30
- **Contractors:**
  - Northrop B-2 Division (Prime)
  - General Electric (Propulsion)
  - Boeing, Raytheon (Major Subsystems)
- **Future Upgrades:** Low Observable materials/ Alternate High Frequency Material (AHFM), UHF SatCom, Link -16, EHF SatCom, Radar Frequency Modification



## Capabilities/Profile

- **Service Ceiling:** 50,000 Feet
- **Combat Range:** Unlimited (air refuelable)
- **Armament:** GBU-28 C/B (5000 lbs. Bunker-buster), JDAMs (GBU-31 & GBU-38), GBU-37/B, Mk 82, Mk 62, Mk 84, M-117, CBU 87/89/97, JASSM, JSOW, B-83, B-61/7, B-61/11
- **Dimensions:**
  - 172 Feet (Wing Span)
  - 69 Feet (Length)
  - 17 Feet (Height)
- **Weight:** 336,500 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission:** Multi-role bomber able to deliver both nuclear and conventional munitions with the added benefits of stealth capability. Ready to attack the enemy's war-making potential, especially those critical targets which, if not destroyed in the first hours of conflict, would allow unacceptable damage to be inflicted on the friendly side. It is the Air Force's only low observable intercontinental range heavy bomber.
- **Performance Parameters:** High subsonic, 50,000 feet, 40,000 lbs payload, conventional or nuclear, survivable

# B-52H Stratofortress

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignments:** Barksdale AFB, LA (Active & Reserve); Minot AFB, ND
- **Current Inventory:** 94 total (93 AF inventory and one permanently loaned to NASA)
- **Contractors:**
  - Boeing (Airframe)
  - Pratt & Whitney (Propulsion)
  - ITT (ECM)
- **Future Upgrades:** Avionics Midlife Improvement (Replaces Inertial Navigation System, Avionics Control Unit and Data Transfer System); Electronic Countermeasures Improvement (ECMI) upgrades ALQ-172 Electronic Counter Measure System); Combat Network Communications Technology (CONNECT) spiral development program combines three modernization programs to include CALCM In-flight Beyond Line of Sight Rapid Retasker (CIBR2), Airborne Wideband Terminal (EHF radio), and LINK-16 Tactical Data Link; Airborne Electronic Attack (AEA) incorporates cornerstone architecture (receiver and jamming pods) for Stand-Off Jamming mission—receiver architecture will also provide situational awareness for self protection



## Capabilities/Profile

- **Service Ceiling:** 50,000 feet  
Combat range: Unlimited (air refuelable)
- **Armament:** MK82/84, M117, CBU 87/89, Laser Guided Bombs, Mk 56/62/63/65 sea mines, CALCM, Harpon, JDAM, WCMD, JSOW, JASSM, ALCM, ACM, B-83, B-61
- **Dimensions:**
  - 185 feet (wing span)
  - 159 feet (length)
  - 40 feet (height)
- **Weight:** 488,000 lbs + fully loaded.

## Functions/Performance Parameters

- **Mission:** Workhorse of the bomber fleet, supporting both nuclear and conventional operations plans. Only long range heavy bomber employing the long-range Advanced Cruise Missile (ACM), Air Launched Cruise Missile (ALCM), and Conventional Air Launched Cruise Missile (CALCM); and the Harpoon anti-ship missile. Used to attack time-sensitive targets during the critical initial phase of a conflict and precision weapons to reduce the effectiveness of enemy air defenses, command and control systems and to eliminate power generation capability. During the build-up and halt phase, aircraft will deploy forward, adding mass and depth in sustained air campaign operations. In a conventional conflict, the B-52 can perform strategic attack, air interdiction, offensive counter-air and maritime operations.
- **Performance parameters:**
  - Top speed: 390 knots
  - Weapons payload: 40,000 pounds

# C-5A/B/C Galaxy

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Altus AFB, OK; Dover AFB, DE; Lackland AFB, TX; Stewart ANG Base, NY; Travis AFB, CA; Westover ARB, MA
- **Current Inventory:** 118
- **Contractors:**
  - Lockheed Martin (Airframe)
  - General Electric (Propulsion)
- **Future Major Upgrades:** Avionics Modernization Program (AMP), Reliability Enhancement & Re-Engining Program (RERP), and Large Aircraft Infrared Countermeasures System (LAIRCM)



## Capabilities/Profile

- **Service Ceiling:** 45,000 Feet
- **Combat Range:** 6,300 NM (unrefueled ferry range); unlimited with in-flight refueling
- **Cruising Speed:** 0.77 Mach
- **Armament:** None
- **Dimensions:**
  - 222 Feet (Wing Span)
  - 247 Feet (Length)
  - 65 Feet (Height)
- **Cargo Compartment:** 121 x 19 x 13.5 ft
- **Maximum Gross Weight:** 840,000 Pounds

## Functions/Performance Parameters

- **Mission:** Strategic delivery of outsized and oversized cargo and passengers
- **Performance Parameters:** (based on 3,200 nm leg)
  - Cruise Speed: 420 knots
  - Payload: 178,000 lbs (291K max)
  - Passenger Capacity: 73 persons
  - C-5 can carry maximum cargo while simultaneously carry maximum passengers

# C-9A/C

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** C-9A: Ramstein AB, GE; Scott AFB, IL; C-9C: Andrews AFB, MD
- **Current Inventory:** 7
- **Contractors:**
  - Lockheed Martin (Airframe)
  - Aero Thrust (Propulsion, Pratt & Whitney)
  - Vertex Aerospace LLC (COMBS)
  - Boeing (Engineering)
- **Commercial Variant of:** DC-9
- **Current Major Upgrades:** Mission Communication/Data Systems



## Capabilities/Profile

- **Service Ceiling:** 37,000 Feet
- **Combat Range:** >1,739 NM
- **Armament:** None
- **Dimensions:**
  - 93 Feet (Wing Span)
  - 119 Feet (Length)
  - 27 Feet (Height)
- **Maximum Gross Weight:**
  - C-9A: 108,000 Pounds
  - C-9C: 110,000 Pounds

## Functions/Performance Parameters

- **Mission:** The C-9A provides cargo and passenger airlift for Operational Support Airlift. The C-9C provides safe, comfortable, and reliable air travel for: U.S. President, Vice President, First Lady, SECDEF, SECSTATE, other cabinet members, Congressional Delegations and Foreign Dignitaries.
  - Top speed: 565 mph (Mach 0.86)

# C-12C/D/F/J

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Osan AB, Korea; Elmendorf AFB, AK; Edwards AFB, CA; Holloman AFB, NM; Andrews AFB, MD; Embassy Sites worldwide
- **Current Inventory:** 28
- **Contractors:**
  - Vertex Aerospace LLC (Propulsion, subcontractor Pratt & Whitney)
  - Vertex Aerospace LLC (Logistics Support)
  - Raytheon Aircraft (Engineering Services)
- **Commercial Variant of:** King Air 200 (C, D, & F models); King Air 1900 (J model)
- **Current Major Upgrades:** Electronic Flight Information System (includes GATM and Navigation/Safety upgrades)



## Capabilities/Profile

- **Service Ceiling:** 31,000 Feet (J-model: 25,000 Feet)
- **Combat Range:** 1,700 NM (J-model: 1,500 NM)
- **Armament:** None
- **Dimensions:**
  - 55 Feet (Wing Span)
  - 44 Feet (Length) (J-model: 58 Feet)
  - 15 Feet (Height)
- **Max Gross Weight:** 12,500 Pounds (J-model: 16,600 Pounds)

## Functions/Performance Parameters

- **Mission:** Provide cargo and passenger airlift over short ranges for Operational Support Airlift and Embassy Support missions. Also used to support test operations at Edwards and Holloman AFBs.
- **Performance Parameters:**
  - Top speed: 300 to 340 mph depending on model
  - Load: 8 passengers (J-model: 19 passengers)

# C-17 Globemaster III

## Acquisition Status

- **Program Status:** Full Rate Production
- **Unit Assignment:** Charleston AFB, SC; Altus AFB, OK; McChord AFB, WA; Thompson Field, MS; McGuire AFB, NJ; March ARB, CA; Hickam AFB, HI; Travis AFB, CA; Elmendorf AFB, AK; Dover AFB, DE
- **Production:** Last delivery April 2008
- **Current Inventory:** 126 (as Oct 04)
- **Projected Inventory:** 180
- **Contractors:**
  - Boeing (Airframe)
  - Pratt & Whitney (Engines)
- **Future Upgrades:** Global Air Traffic Management (GATM)/Nav Safety; Onboard Inert Gas Generating System II (OBIGGS II); Formation Flying Systems; Crew Armor Plating; Combat Lighting, Large Aircraft Infrared Countermeasures (LAIRCM); Operational & Reliability Improvements
- **Purchase Requirements:** 180



## Capabilities/Profile

- **Service Ceiling:** 45,000 Feet (at cruising speed)
- **Combat Range:** Global with in-flight refueling
- **Cruising Speed:** 0.74 - 0.77 MACH
- **Armament:** N/A
- **Dimensions:**
  - 169.8 Feet (Wing Span)
  - 174 Feet (Length)
  - 55.1 Feet (Height)
- **Cargo Compartment:** 88 x 18 x 12.3 Feet
- **Maximum Gross Weight:** 585,000 Pounds

## Functions/Performance Parameters

- **Mission:** Wide-body aircraft capable of airlifting outsized and oversized payloads over intercontinental ranges, with or without in-flight refueling. Provides rapid direct delivery of forces by airland or airdrop into austere tactical environments. Capable of performing both intertheater and intratheater airlift missions.
- **Performance Parameters:** (based on 3,200nm leg)
  - Speed: 421 knots
  - Payload: 164,900 pounds
  - Passenger capacity: 102 persons in standard configuration & 188 persons with palletized seats

# C-20B/H

## Acquisition Status

- **Program Status:** Sustainment
- **Unit of Assignment:** Andrews AFB, MD; Ramstein AB, GE
- **Production:** Commercial derivative aircraft; delivery completed in 1996
- **Current Inventory:** 7
- **Projected Inventory:** 7
- **Contractors:**
  - M7 Aerospace (Prime for Contractor Logistics Support)
  - M7 Aerospace (Propulsion, subcontracted to Rolls Royce & Dallas Airmotive)
  - M7 Aerospace (Depot Maintenance, subcontracted to L-3 Integrated Systems)
  - M7 Aerospace (COMBS at Andrews and Ramstein)
  - M7 Aerospace (Flightline at Ramstein)
  - DynCorp (Flightline at Andrews)
  - Gulfstream (OEM-Engineering Services/Tech Data)
  - L-3 Integrated Systems (Mission Comm System on C-20Bs)
- **Military Variant of:** Gulfstream III and Gulfstream IV
- **Current Major Upgrades:** Mission Communication/Data Systems, IFF, ELT (B-models) and elementary mode S



## Capabilities/Profile

- **Service Ceiling:** 45,000 Feet
- **Range:** C-20B - 2,700 NM; C-20H - 3,375 NM
- **Armament:** None
- **Dimensions(C-20B/C-20H):**
  - 78 Feet/78 Feet (Wing Span)
  - 83 Feet/88 Feet (Length)
  - 25 Feet/25 Feet (Height)
- **Max Gross Weight:** C-20B - 69,700 Pounds; C-20H - 74,600 Pounds

## Functions/Performance Parameters

- **Mission:** Provides transportation for the Vice President, Cabinet and Congressional members, and other high-ranking U.S. and foreign officials
- **Performance Parameters:**
  - Cruise Speed: 576 mph (Mach 0.80)

# C-21A

## Acquisition Status

- **Program Status:** Sustainment
- **Unit of Assignment:** Langley AFB, VA; Andrews AFB, MD; Wright-Patterson AFB, OH; Scott AFB, IL; Offutt AFB, NE; Peterson AFB, CO; Keesler AFB, MS; Ramstein AB, GE; Yokota AB, JP
- **Production:** Commercial derivative aircraft; delivery completed in 1986
- **Current Inventory:** 76
- **Projected Inventory:** 76
- **Contractors:**
  - L-3 Comm Vertex (Prime for Contractor Logistics Support)
  - L-3 Comm Vertex (COMBS)
  - L-3 Comm Vertex (Propulsion Subcontracted to Garret Aviation)
  - L-3 Comm Vertex (Depot Maintenance subcontracted to Duncan Aviation)
  - Learjet (OEM)
- **Military Variant of:** Learjet 35A
- **Current Major Upgrades:** None



## Capabilities/Profile

- **Service Ceiling:** 45,000 Feet
- **Range:** 2,300 NM
- **Armament:** None
- **Dimensions:**
  - 39 Feet (Wing Span)
  - 48 Feet (Length)
  - 12 Feet (Height)
- **Maximum Gross Weight:** 18,300 Pounds

## Functions/Performance Parameters

- **Mission:** Provide cargo and passenger airlift over short ranges, into short field. May configure to transport litters during medical evacuations.
- **Performance Parameters:**
  - Cruise speed: 530 mph (Mach 0.81)
  - Load: 8 passengers and 42 cubic feet of cargo

# C-29A

## Acquisition Status

- **Program Status:** Sustainment by Federal Aviation Administration (FAA). Aircraft were transferred from Air Force to FAA in 1991
- **Unit Assignment:** FAA Aviation System Standards, Will Rogers Int'l Airport, OK
- **Production:** Production line closed in 1989
- **Current Inventory:** 6
- **Projected Inventory:** 3
- **Contractors:**
  - Raytheon Aircraft Company (Airframe)
  - Honeywell Aerospace (Propulsion)
  - Honeywell Aerospace (Avionics)
- **Future Upgrades:** Traffic Collision Avoidance System (TCAS II)



## Capabilities/Profile

- **Service Ceiling:** 41,000 Feet
- **Combat Range:** 2,000 miles
- **Armament:** None
- **Dimensions:**
  - 51.4 Feet (Wing Span)
  - 51.1 Feet (Length)
  - 17.4 Feet (Height)
- **Weight:**
  - 18,000 Pounds (Gross Weight Empty)
  - 28,000 Pounds (Max Takeoff Weight)
- **Top Speed:** 385 mph (Mach 0.80)

## Functions/Performance Parameters

- **Mission:** C-29 conducts flight inspection of navigation equipment and radars, complying with Joint Directives to provide FAA-certified instrument approach capability at forward airfields. During combat/contingency employment, aircraft are operated by Air Force aircrews assigned to the Air Force Flight Standards Agency (AFFSA). Under 1991 MOA between USAF and FAA, USAF transferred control of its six C-29A Hawker aircraft and FAA accepted flight inspection responsibility for Department of Defense.
- **Performance Parameters:** Aircraft are equipped with highly specialized navigation receivers and computers to analyze facility signal output collected during precision aircraft maneuvers.

# C-32A

## Acquisition Status

- **Program Status:** Sustainment
- **Unit of Assignment:** 89AW, Andrews AFB, MD
- **Production:** Commercial derivative aircraft; delivery complete Dec 1998
- **Current Inventory:** 4
- **Projected Inventory:** 4
- **Contractors:**
  - Boeing (Prime for Contractor Logistics Support)
  - Boeing (Airframe)
  - Boeing (Avionics)
  - Boeing (Engines subcontracted to Pratt & Whitney)
  - DynCorp (Flightline)
- **Military Variant of:** Boeing 757-200
- **Current Major Upgrades:** Mission Communication/Data System



## Capabilities/Profile

- **Service Ceiling:** 41,000 Feet
- **Range:** 3,800 NM
- **Armament:** None
- **Dimensions:**
  - 125 Feet (Wing Span)
  - 155 Feet (Length)
  - 44.5 Feet (Height)
- **Max Gross Weight:** 255,000 Pounds

## Functions/Performance Parameters

- **Mission:** Provides transportation for the President, Vice President, Cabinet, congressional delegations, and other senior U.S. and foreign officials.
- **Performance Parameters:**
  - Cruise Speed: 530 mph (Mach 0.8)
  - Load: 46 passengers and 16 crew

# C-37A

## Acquisition Status

- **Program Status:** Sustainment
- **Unit of Assignment:** Andrews AFB, MD; MacDill AFB, FL; Hickam AFB, HI; Chievres Air Base, BE
- **Production:** Commercial derivative aircraft; delivery completed Sep 2002
- **Current Inventory:** 9 (includes four owned aircraft and five leased aircraft)
- **Projected Inventory:** 9
- **Contractors:**
  - Gulfstream (Prime for Contractor Logistics Support)
  - Gulfstream (Airframe)
  - Gulfstream (Depot Maintenance)
  - Gulfstream (COMBS)
  - Gulfstream (Engines sub contracted to Rolls Royce)
  - Gulfstream (Avionics subcontracted to Honeywell & Rockwell Collins)
  - Gulfstream (Wing subcontracted to Vought)
- **Military Variant of:** Gulfstream V
- **Current Major Upgrades:** Communication Systems



## Capabilities/Profile

- **Service Ceiling:** 51,000 Feet
- **Range:** 5,300 NM
- **Armament:** None
- **Dimensions:**
  - 93.5 Feet (Wing Span)
  - 96.5 Feet (Length)
  - 26 Feet (Height)
- **Max Gross Weight:** 90,500 Pounds

## Functions/Performance Parameters

- **Mission:** Provides transportation for the Vice President, White House, Cabinet and Congressional members, Combatant Commanders and other senior U.S. and foreign officials.
- **Performance Parameters:**
  - Cruise Speed: 530 mph (Mach 0.8)
  - Load: 14 passengers and 5 crew

# C-40B/C

## Acquisition Status

- **Program Status:** Procurement
- **Unit Assignment:** Andrews AFB, MD; Hickam AFB, HI; ANG, Andrews AFB, MD
- **Production:** Commercial aircraft; Air Force has 3 more C-40Cs on order to delivery in FY07-08
- **Current Inventory:** 5
- **Contractors:**
  - Boeing (Airframe)
  - CFM International (Engines)
  - DynCorp (Flightline) (C-40B at Andrews)
  - Boeing (Flightline) (C-40B at PACAF)
- **Commercial Variant:** Boeing 737-700
- **Current Major Upgrades:** None



## Capabilities/Profile

- **Service Ceiling:** 41,000 Feet
- **Combat Range:** 5,000 NM
- **Armament:** None
- **Dimensions:**
  - 112 Feet (Wing Span)
  - 110 Feet (Length)
  - 41 Feet (Height)
- **Max Gross Weight:** 171,500 Pounds

## Functions/Performance Parameters

- **Mission:** Provides transportation for the Combatant Commanders and other senior Government officials. Replaces combatant commander support C-135s and ANG C-22B.
- **Performance Parameters:**
  - Cruise Speed: 530 mph (Mach 0.8)
  - Load: C-40B 26 passengers and 11 crew; C-40C 68 passengers, 11 crew

# C-130E/H Hercules

## Acquisition Status

- **Program Status:** Sustainment
- **Active Duty Unit**
- Assignment:** Little Rock AFB, AR; Pope AFB, NC; Dyess AFB, TX; Elmendorf AFB, AK; Yokota AB, JP; Ramstein AB, GE
- **Current Inventory:** 491
- **Projected Inventory:** 468
- **Contractors:**
  - Airframe, Lockheed
  - Propulsion, Allison
- **Future Upgrades:** Electrical System Upgrade, Airlift Defensive Systems, Enhanced Traffic Collision and Avoidance System, C-130 Avionics Modernization Program



## Capabilities/Profile

- **Service Ceiling:** 33,000 Feet
- **Combat Range:** 3,000 Nautical Miles
- **Armament:** None
- **Dimensions:**
  - 132 Feet (Wing Span)
  - 97 Feet (Length)
  - 39 Feet (Height)
- **Maximum Gross Weight:** 155,000 Pounds

## Functions/Performance Parameters

- **Mission:** The C-130E/H provides rapid transportation of personnel or cargo for delivery day or night by parachute or landing. Adverse Weather Aerial Delivery System equipped aircraft have the additional capability of performing airdrops without external assistance in inclement weather. It can also be used for Aeromedical Evacuation of injured troops.
- **Performance Parameters:** The C-130 can takeoff and land on short, unimproved runways normally found during austere operations. Top speed is 374 knots.
  - Payload: 45,000 lbs of cargo
  - Passenger Capacity: 92 ground, or 64 paratroopers.

# C-130J

## Acquisition Status

- **Program Status:** Full-rate production
- **Unit Assignment:** Keesler AFB, MS; Baltimore, MD; Harrisburg, PA; Quonset, RI; Channel Islands, CA; Little Rock AFB, AR
- **Production:** Through 2016
- **Current Inventory:** 32 accepted: 12 C-130Js, 10 WC-130Js, 5 EC-130Js, 5 C-130J-30s; 5 aircraft to deliver in FY04: 5 C-130-30Js; 10 C-130-30Js deliver FY05
- **Projected Inventory:** 168; FY03 multiyear contract will deliver 42 C-130J-30s, FY05-FY09
- **Contractors:**
  - Lockheed Martin (Airframe)
  - Rolls Royce (Propulsion)
- **Future Upgrades:** GATM/Nav Safety/EC-130Js undergo follow-on mod program at Lockheed Palmdale
- **Purchase Requirements:** 10 WC-130Js, 8 EC-130Js, 12 C-130Js, 138 C-130J-30s



## Capabilities/Profile

- **Service Ceiling:** 33,000 Feet
- **Combat Range:** 3,600 Nautical Miles, Global with in-flight refueling (EC-130J)
- **Armament:** N/A
- **Dimensions:** C-130J / C-130J-30
  - 132.6 / 132.6 Feet (Wing Span)
  - 97.8 / 112.8 Feet (Length)
  - 38.8 / 38.8 Feet (Height)
- **Weight:** 164,000 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission:** C-130J/C-130J-30 provides immediate movement of combat troops and supplies within theaters of operation. WC-130J provides weather reconnaissance and the EC-130J provides psychological operations capabilities.
- **Performance Parameters:**
  - Cruising speed: 342 knots
  - Payload: 36,000 Pounds at 2,850 nm

### C-130J vs. C-130J-30

<u>Load Comparisons</u>	<u>C-130E/H/J</u>	<u>C-130J</u>	<u>Increase</u>
Cargo Floor Length	40 ft	55 ft	37%
463L Pallets	5	7	40%
Medical Litters	74	97	31%
CDS Bundles	16	24	50%
Combat Troops	64	92	44%
Max Gross Weight*	155 K	164 K	6%

*\*Higher C-130J-30 gross weight results in 6K lbs of additional cargo/fuel capability compared with the 15 ft shorter C-130E/H/J*

# C-141 Starlifter

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Wright-Patterson AFB, OH
- **Current Inventory:** Drawing down from 18 total aircraft as of Nov 04
- **Projected Inventory:** 0 by FY07
- **Contractors:**
  - Lockheed Martin (Airframe)
  - Pratt Whitney (Propulsion)
- **Current Upgrades:** None



## Capabilities/Profile

- **Service Ceiling:** 41,000 Feet
- **Combat Range:** 4,600 NM (unrefueled ferry range) (unlimited with in-flight refueling)
- **Cruising Speed:** 0.74 Mach
- **Dimensions:**
  - 160 Feet (Wing Span)
  - 168 Feet (Length)
  - 39 Feet (Height)
- **Armament:** None
- **Cargo Compartment:** 93 x 10.3 x 9 Feet
- **Maximum Gross Weight:** 343,000 Pounds

## Functions/Performance Parameters

- **Mission:** Strategic delivery of cargo, passengers, and patients via airland and/or airdrop. Primary strategic special operations and airdrop platform.
- **Performance Parameters:** (based on 3,200nm leg)
  - Cruise Speed: 405 knots
  - Payload: 60,000 pounds
  - Passenger Capacity: 153 persons

# CV-22 Osprey

## Acquisition Status

- **Program Status:** Engineering & Manufacturing Development scheduled to complete in FY06; Currently in Low Rate Initial Production; Full-Rate Production decision expected Sep 05; Begin Initial Operational Test & Evaluation in FY06; Stand up Special Operations Forces schoolhouse in FY06; Initial Operational Capability is FY09
- **Unit Assignment:** Hurlburt Field, FL; Kirtland AFB, NM
- **Production:** 2 Production Representative Test Vehicles will be delivered in FY05; first 2 production CV-22 will be delivered in FY06
- **Current Inventory:** 0
- **Projected Inventory:** 50
- **Contractors:**
  - Bell Boeing (Airframe)
  - Allison (Propulsion)
  - Raytheon (TF/TA Radar)
  - ITT Avionics (EW Suite)
- **Future Upgrades:** Block 20 planned for an FY08 start: Link-16, JTRS, CNS/ATM Phase II, Emergency Power, High Altitude Conversion Operations



## Capabilities/Profile

- **Service Ceiling:** 25,000 Feet
- **Combat Range:** Unlimited with air refueling
- **Armament:** TBD
- **Dimensions:**
  - 45.8 Feet (Wing Span)
  - 84.6 Feet (Rotors tip-to-tip)
  - 57.3 Feet (Length)
  - 22.1 Feet (Height)
- **Weight:**
  - 34,900 Pounds (Gross Weight Empty)
  - 52,600 Pounds (Max Vertical Take-Off Weight)
  - 57,000 Pounds (Short Take-off Weight)
  - 60,500 Pounds (Self Deploy Weight)
- **Speed:** 230 knots cruise

## Functions/Performance Parameters

- **Mission:** CV-22 will conduct long-range, adverse weather, clandestine penetration of medium to high threat environments in politically or militarily denied areas to infiltrate, exfiltrate, resupply, and execute personnel recovery operations of Special Operations Forces.
- **Performance Parameters:** The CV-22 tailors the basic V-22 to meet SOF mission requirements. It maintains the inherent MV-22 characteristics including shipboard compatibility, aerial refueling, external loads, high survivability, triple redundant fly-by-wire flight controls and advanced cockpit displays. CV-22 then adds unique capabilities such as a state-of-the-art radar warning and jamming suite, multi-mode terrain following/terrain avoidance radar, infrared countermeasures, additional fuel tanks, communication capability, and chaff and flares.
  - Payload: 18 SOF personnel

# E-3 Airborne Warning and Control System (AWACS)

## Acquisition Status

- **Program Status:** Sustainment
- **Units of Assignment:** Tinker AFB, OK; Elmendorf AFB, AK; Kadena AFB, Japan
- **Production:** Deployed March 1977; Planned to remain in service beyond 2035
- **Current Inventory:** 33 (32 operational, plus 1 test asset)
- **Major Contractors:**
  - Boeing (Prime Contractor/Integration)
  - Northrop Grumman (Radar)
- **Future Upgrades:** Radar System Improvement Program (RSIP) completing in FY 2005, Block 40/45 Computers and Displays, Integrated Demand Assigned Multiple Access (DAMA) Global Air Traffic Management (GATM) (IDG), Navigation Warfare (NAVWAR), and Next Generation Identification Friend or Foe



## Capabilities/Profile

- **Models:** E-3B – 23 aircraft, E-3C – 10 aircraft
- **Ceiling:** 29,000 feet
- **Combat Range:** 2800+ NM (no refueling)
- **Power Plant:** Four Pratt and Whitney TF33-PW-100A turbofan engines
- **Dimensions:**
  - 130 feet, 10 inches (Wing Span)
  - 145 feet, 6 inches (Length)
  - 41 feet, 4 inches (Height)
- **Weight:** 347,000 Pounds
- **Operational Crew Makeup:**
  - Flight crew: 4
  - Mission crew: 13-19
  - Mission crew size varies according to mission
  - Officer and enlisted specialists

## Functions/Performance Parameters

- **Mission:** Deployable command and control (C2) battle management platform employed at the tactical level of war. It supports directing, coordinating, and controlling forces and operations. AWACS may be employed by itself or in combination with other tactical C2 assets. It may be tasked across the broad range of military operations to support all phases of the crisis/contingency life cycle. AWACS provides all altitude surveillance, warning, and battle management for worldwide air combat operations.
- **Performance Parameters:**
  - Speed: Optimum cruise 360 mph (Mach 0.48)
  - Endurance: More than 8 hours (unrefueled)

# E-4B National Airborne Operations Center (NAOC)

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Offutt AFB, NE
- **Current Inventory:** 4
- **Contractors:** Boeing, Wichita Development & Modification Center
- **Future Upgrades:**
  - Modernization upgrades of primary mission equipment and modifications to ensure compliance with global air traffic management navigation requirements



## Capabilities/Profile

- **Service Ceiling:** above 40,000 feet
- **Combat Range:** 6,000+ NM (capable of aerial refueling)
- **Dimensions:**
  - 195 feet, 8 inches (Wing Span)
  - 231 feet, 4 inches (Length)
  - 63 feet, 5 inches (Height)
- **Weight:** 800,000 pounds

## Functions/Performance Parameters

- **Mission:** A survivable node of National Military Command System and staff. Provides national leadership a secure command & control (C2) facility. Supports the Department of Homeland Security when needed as directed by the SECDEF.
- **Performance Parameters:**
  - For strategic C2 mission total manifest of 114: 63 crew/ battle staff; 51 passengers
  - For SECDEF Support Mission: 33 crew; 81 passengers
  - Hardened against Electro-magnetic Pulse
  - Robust communications useful in a nuclear disturbed environment
  - Worldwide secure voice, video teleconferencing, and internet connectivity communications

# E-8C Joint STARS

## Acquisition Status

- **Program Status:** Production/Operational
- **Unit Assignment:** Robins AFB, GA
- **Production:** Through March 2005
- **Current Inventory:** 16E-8Cs delivered to 116th Air Control Wing, Air National Guard (ANG)
- **Projected Inventory:** 17 E-8Cs
- **Contractors:**
  - Northrop Grumman (prime)
  - General Dynamics (prime for Army CGSS)
  - CUBIC (sub for secure data link to Army ground stations)
  - Raytheon (sub for general purpose computers and prime for aircraft contractor logistics support)
  - Boeing and L-3 (sub for academic and simulator instruction)
- **Future Upgrades:** Computer Replacement Program (CRP), Combined SATCOM/ABCCC Capability Insertion (CSACI), Link16 Attack Support Upgrade (ASU) Communications Navigation Surveillance/Air Traffic Management (CNS/ATM) Upgrades, Joint Tactical Radio System (JTRS) Integration.



## Capabilities/Profile

- **Aircraft Type:** Modified 707-300 Series
  - P17 - Modified C-18
- **Aircraft Performance:** (707-300 Series)
  - Service Ceiling: 32,000 Feet
  - Range/Duration: 10hrs; 20hrs w/inflight refuelings
  - Max Airspeed: .84 Mach
- **Dimensions:**
  - 130 Feet, 10 Inches (Wing Span)
  - 152 Feet, 11 Inches (Length)
  - 42 Feet, 6 Inches (Height)
- **Weight:** 336,000 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission:** 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.
- **Performance Parameters:**
  - Multi-mode, phased array radar; equipped with both Moving Target Indicator (MTI) and Synthetic Aperture Radar (SAR)
  - Wide area/small area surveillance with rapid revisit
  - Robust ECCM, joint mission crew, 18 multi-purpose workstations, allows rapid deployment, self-contained operation
  - Secure Surveillance and Control Data Link (SCDL) to Army Common Ground Stations (CGSS); Link 16 to Joint C3I nodes

# EC-130E/J Commando Solo

## Acquisition Status

- **Program Status:** Sustainment for current EC-130E aircraft; Modernization through Congressional adds to cross-deck/convert Commando Solo special mission equipment to new C-130Js. (EC-130Js)
- **Current Inventory:**
  - 3 x EC-130Es
  - 3 x EC-130Js in unit conversion
  - 3 x EC-130J Super Js (1 in modification)
- **Unit Assignment:** Harrisburg, PA
- **Contractor:** Lockheed Palmdale
- **Future Upgrades:** Cross-decking of special mission equipment from EC-130Es to EC-130Js, AAR-47 Missile Warning Receiver, ARC-222 SINCGARS radio. USSOCOM Modular Commando Solo package (in development) will be used on the EC-130J Super Js.



## Capabilities/Profile

- **Service Ceiling:** EC-130E - 20,000 Feet; EC-130J - 28,000 Feet
- **Combat Range:** EC-130E/J - Unlimited (in-flight refuelable)
- **Prime Mission:** EC-130E/J - Psychological operations
- **Crew Complement:**
  - EC-130E - 11, two pilots, navigator, flight engineer, loadmaster, mission control chief, and five electronic communications systems operators
  - EC-130J - 10, two pilots, navigator, loadmaster, mission systems officer, and five electronic communications systems operators
- **Dimensions:** EC-130E/J
  - 132 Feet (Wing Span)
  - 100 Feet (Length)
  - 38 Feet (Height)
- **Weight:** EC-130E/J - 155,000 Pounds (Peace Time Gross Weight)

## Functions/Performance Parameters

- **Mission:** The mission of the EC-130E/J Commando Solo is to conduct psychological operations and civil affairs broadcast in the AM, FM, HG, TV, and military communications bands. Typical mission consists of a single-ship orbit that is offset from the desired target audience. The targets may be either military or civilian personnel.
- **Secondary Mission:** Command, control, and communications countermeasures (C3CM) and limited intelligence gathering
- **Performance Parameters (EC-130E)**
  - Power: Four Rolls Royce T-56-A-15 Four-blade Turboprops
  - Thrust: 4,591 shaft horsepower each
  - Speed: 240-260 knots
- **Performance Parameters (EC-130J)**
  - Power: Four Rolls Royce AE2100D3 Six-blade Turboprops
  - Thrust: 4,637 shaft horsepower each
  - Speed: 300-320 knots

# EC-130H Compass Call

## Acquisition Status

- **Program Status:** Sustainment for current EC-130H Block 20 and Block 30 aircraft; Modernization to Block 35 common configuration underway.
- **Current Inventory:**
  - 4 x operational Block 20
  - 8 x operational Block 30
  - 2 x Block 20 in Block 35 conversion
  - 1 x TC-130H flight crew training aircraft
- **Unit Assignment:** Davis-Monthan AFB, AZ
- **Contractors:** BAE, Nashua, NH (prime mission equipment)
  - Boeing, PA (SPEAR pods)
  - Lockheed Martin, GA (airframe, avionics)
  - L3Com, Waco, TX (depot maintenance)
- **Future Upgrades:** Upgrade of the entire fleet to a transformational Block 35 configuration began in FY04 and is slated to continue through FY11. The Block 35 upgrade significantly increases COMPASS CALL's target set, standoff range, and "arsenal" of jamming techniques. Legacy Block 20 and Block 30 aircraft continue to participate in the Global War on Terrorism and will support any other conflict throughout the fleet conversion. Future upgrades enhance operational capabilities in support of Global Strike, and ensure the DoD's Information Operations capabilities keep pace with the rapidly expanding growth in modern



communications systems available to hostile governments and terrorists alike.

## Capabilities/Profile

- **Service Ceiling:** 25,000 Feet
- **Combat Range:** Unlimited (air refuelable)
- **Prime Mission:** Information Warfare and Electronic Attack
- **Crew Complement:** 13 - Two pilots, navigator, flight engineer, mission crew commander/EWO, airborne maintenance technician, and seven linguists or special signals operators.
- **Dimensions:**
  - 132 Feet (Wing Span)
  - 100 Feet (Length)
  - 38 Feet (Height)
- **Weight:** 155,000 Pounds (Gross takeoff weight)

## Functions/Performance Parameters

- **Mission:** Premier Information Warfare and Electronic Attack weapon system; counter advanced command, control, and communication (C3) systems and provide stand-off jamming of air defense early warning and acquisition radars. disrupt surface-to-air missile (SAM) and anti-aircraft artillery (AAA) threats; key component of the Air Force's Airborne Electronic Attack system of systems (which will include future systems such as B-52 Stand-Off Jammer and Miniature Air Launched Decoys). Also supports ground and special operations forces by denying hostile forces and terrorists the communications and situational awareness needed to coordinate operations against US and allied troops.
- **Performance Parameters:**
  - Power Plant: Four Allison T-56-A-15 Turboprops
  - Speed: 318 knots

# E-10A

## Acquisition Status

- **Program Status:** Pre-System Development and Demonstration
- **Unit Assignment:** TBD
- **Production:** TBD
- **Current Inventory:** None
- **Projected Inventory:**  
Increment 1.0 fields 7 aircraft (1 test and 6 operational) equipped with a Multi-Platform Radar Technology Insertion Program (MP-RTIP) sensor
- **Contractor:**
  - Northrop Grumman (prime)
  - Raytheon
  - Boeing
- **Future Proposed Upgrades:**  
Future enhancements envision integrating advanced Unmanned Aerial Vehicle (UAV) and UAV sensor control, incorporating state-of-the-art multi-sensor fusion technology to further automate and enhance combat identification functions, and an execution cell to direct Time-Sensitive-Target (TST) engagements and manage the dynamic battlespace.

## Capabilities/Profile

- **Aircraft Type:** Modified 767-400 Extended Range Test bed
- **Predicted Aircraft Performance:**
  - Service Ceiling: 34,000-38,000 feet
  - Range/Duration: Mission Profile-400 nm transit range with 11.5 hours Time-On-Station; unlimited w/in-flight refuel



- Cruise Airspeed: 0.76 Mach
- **Dimensions:**
  - 170 feet, 4 inches (Wingspan)
  - 201 feet, 4 inches (Length)
  - 55 feet, 4 inches (Height)
- **Weight:** 450,000 Pounds (Maximum Takeoff Weight)

## Functions/Performance Parameters

- **Mission:** The E-10A, integrates the next generation wide area surveillance sensor on a wide body platform and delivers Strategic Planning Guidance-directed, and Joint Requirements Oversight Council-approved, Cruise Missile Defense (CMD) capabilities to the joint warfighter. It will provide a near real-time, horizontally integrated view of the air and surface battlespace through the use of advanced sensors, network centric warfare, and high-speed, wideband communications systems. The E-10A is a key enabler for the Global Strike Task Force, CMD, and TST engagements.

- **Performance Parameters:**  
E-10A Increment 1 fields the MP-RTIP radar -- the next generation Ground Moving Target Indicator (GMTI) sensor that also provides a focused AMTI capability to support CMD, within an open system architecture that includes advanced communications as well as robust Unmanned Air Vehicle control and multi sensor fusion to significantly enhance integration of sensor information provided to precision shooters. Automatically produces prioritized attack options for both precision and non-precision weapons quality engagement data simultaneously for at least 25 surface targets using the onboard MP-RTIP radar and at least 100 surface targets when using both onboard and off-board resources.  
The E-10A will have the ability to concurrently and automatically detect, locate, track, classify, and identify stationary and moving air and surface targets in a hostile electronic attack environment. This capability will enable commanders to make key decisions in exploitation, joint fires, maneuver, targeting and offensive and defensive operational support.

# F-15 Eagle

## Acquisition Status

- **Program Status:**
  - Production of F-15E attrition reserve aircraft
  - Modification/sustainment of fielded F-15s
- **Unit Assignment:** Worldwide
- **Production:** Last F-15 (F-15E) delivery Sep 04
- **Current Inventory:** 733 F-15A/B/C/D/E
- **Contractors:**
  - Boeing (Airframe)
  - Pratt & Whitney (Propulsion)
  - Raytheon (Radar)
- **Future Upgrades:** Radar & Engine Upgrades, GPS/Smart Weapons Integration, Helmet Cueing, Identification Friend-or-Foe upgrade, EW upgrades, Digital Video Recorder
- **Purchase Requirements:** None.



## Capabilities/Profile

- **Service Ceiling:** 65,000 Feet
- **Combat Range:** 220-1300 NM (varies with loadout & mission)
- **Armament:**
  - F-15A/B/C/D: Missiles (Air-to-Air) AIM-7/-9/-120, 20mm Cannon
  - F-15E: Missiles, Bombs (Air-to-Ground) Gen Purpose, GBU/CBUs, Maverick, JSOW, JDAM, WCMD
- **Dimensions:**
  - 42.8 Feet (Wing Span)
  - 63.8 Feet (Length)
  - 18.5 Feet (Height)
- **Weight (Max Gross):**
  - F-15C: 68,000 lbs
  - F-15E: 81,000 lbs

## Functions/Performance Parameters

- **Mission:** F-15A-D is a dual engine, all weather, extremely maneuverable fighter designed to gain and maintain air superiority. F-15E retains the F-15 A-D's basic air-to-air capability and is equipped to conduct all weather/night, deep penetration air-to-surface attack.
- **Performance Parameters:**
  - Speed: 1,875 mph (Mach 2.5+)
  - Range: 3,000 nautical miles ferry with conformal fuel tanks (F-15E only) and 3 external tanks
  - Thrust: F-15C: 25,000 lbs each engine, max with afterburner F-15E: 29,000 lbs each engine, max with afterburner

# F-16 Fighting Falcon

## Acquisition Status

- **Program Status:**
  - Production of force structure/attrition reserve
  - Modification/sustainment of fielded F-16s
- **Unit Assignment:** Worldwide
- **Production:** Last USAF aircraft delivery FY05
- **Current USAF Inventory:** 1344
- **Projected Inventory:** 1345
- **Contractors:**
  - Lockheed Martin (Airframe)
  - General Electric/Pratt & Whitney (Engines)
  - Northrop Grumman (Radar)
- **Future Upgrades:** Link-16 Capability, Joint Helmet Mounted Cueing System, Advanced Air-to-Air Weapons, Modular Mission Computer, Night Vision Imaging System, Air-to-Air Interrogator (Block 50), Advanced Targeting Pod, and APG-68(V)10 synthetic aperture radar



## Capabilities/Profile

- **Service Ceiling:** 50,000 Feet
- **Combat Range:** 500 NM
- **Armament:**
  - Missiles (Air-to-Air): AIM-9/-120
  - Missiles/Bombs (Air-to-Ground): GBUs, CBU, Maverick, HARM, 20mm Cannon, JDAM, JSOW, WCMD
- **Dimensions:**
  - 32.8 Feet (Wing Span)
  - 49.3 Feet (Length)
  - 16.7 Feet (Height)
- **Weight:** 42,000 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission:** A single engine multi-role tactical fighter with full air-to-air and air-to-ground combat capabilities. Block 40 aircraft have the systems required to conduct night/under-the-weather precision attacks and Block 50 aircraft employ the High Speed Anti-Radiation Missile (HARM) Targeting System in the Suppression of Enemy Air Defenses (SEAD) role. Block 50 Destruction of Enemy Defenses (DEAD) will occur with the delivery of the Advanced Targeting Pod in FY05.
- **Performance Parameters:**
  - Speed: 1,500 mph (Mach 2 at altitude)
  - Range: > 2,000 miles ferry range
  - Thrust: 27,000 pounds

# F/A-22 Raptor

## Acquisition Status

- **Program Status:** Engineering & Manufacturing Development winding down for completion in FY06; Currently in Low Rate Initial Production; Full-Rate Production decision expected March 2005; began Initial Operational Test & Evaluation on 29 April 2004--all open air testing complete, awaiting analysis. Initial Operational Capability is expected at Langley AFB Virginia in December 2005
- **Projected Unit Assignment:** Edwards AFB, Nellis AFB, Tyndall AFB, Langley AFB, Elmendorf AFB
- **Production:** Last delivery in 2013
- **Current Inventory:** 8 developmental test aircraft; 22 production aircraft. Total of 30 aircraft
- **Projected Inventory:** 275 production aircraft
- **Contractors:**
  - LM-Aero, Marietta (Center Fuselage and overall System Integration)
  - LM-Aero, Ft Worth (Mid Fuselage)
  - Boeing (Aft Fuselage & Wings)
  - Pratt & Whitney (Propulsion)
- **Future Upgrades:** Integration of Small Diameter Bomb (SDB), Enhanced Air-to-Ground Radar, Enhanced Intelligence, Surveillance, and Reconnaissance capabilities



- **Purchase Requirements:** 74 a/c delivered or on contract thru Lot 4; 201 a/c remain to be procured

## Capabilities/Profile

- **Service Ceiling:** >50,000 Feet
- **Combat Range:** 425 nm
- **Armament:**
  - AIM-120C Advanced Medium Range Air to Air Missile (AMRAAM)
  - AIM-9M Sidewinder (Air-to-Air)
  - GBU-32 (1,000lb Joint Direct Attack Munitions) (Air-to-Ground)
  - M61 (20MM) Cannon
- **Dimensions:**
  - 44 Feet, 6 Inches (Wing Span)
  - 62 Feet, 1 Inches (Length)
  - 16 Feet, 6 Inches (Height)
- **Weight:** 68,000 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission:** First-of-a-kind multi-mission fighter aircraft combining stealth, supercruise, advanced maneuverability and integrated avionics to make it the world's most capable fighter aircraft. Raptor's unique capabilities grant access to the most demanding threat environments—day or night. The ability to penetrate denied airspace make it the weapon of choice for gaining air dominance.
- **Performance Parameters:**
  - Low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance allowing supersonic cruise without afterburner (super-cruise).
  - Internal carriage of both air-to-air and air-to-ground weapons preserves F/A-22 stealth characteristics.
  - For its air-to-air mission, the F/A-22 will carry six AIM-120C and two AIM-9M.
  - The F/A-22 can internally carry two 1,000 pound-class Joint Direct Attack Munitions (JDAM), with two AIM-120C and two AIM-9M to support the air-to-ground mission.

# F-35 Joint Strike Fighter

## Acquisition Status

- **Program Status:**  
System Development and Demonstration (SDD)
- **Projected Unit Assignment:**  
TBD
- **Production:** begins in 2007  
for first deliver in 2009-2028
- **Projected Inventory:** 1763  
Conventional Takeoff and Landing
- **Contractors:**
  - Lockheed Martin (Airframe)
  - Pratt & Whitney and General Electric/Rolls-Royce (Propulsion)

## Capabilities/Profile (CTOL variant)

- **Speed:**
  - Level Flight: 1.5 Mach > 30,000 ft
  - Design Max: 700 KCAS/1.6 Mach
- **“G”:** +9.0/-3.0
- **Payload (Internal):**
  - 2x AIM - 120C (AMRAAM)
  - 2x 2,000 lb Class (JDAM, WCMD, GBU, CBU, JSOW, etc.)
  - Small Diameter Bomb
  - Joint Aviation Common Modular Missile (JACMM)
  - 25mm Gun
- **Payload (External):**
  - Internal stores plus
  - AIM-9X
  - Mk-82, 83, 84 family of JDAM and Laser Guided Bombs
  - AGM-158 JASSM
- **Range:**
  - Threshold: 590 NM
  - Objective: 690 NM



## Functions/Performance Parameters

• **Mission:** stealthy, multi-role strike fighter to meet the requirements of three services, the United Kingdom (UK), and other allies. The Conventional Takeoff and Landing (CTOL) F-35 will support the USAF core competencies of Air and Space Superiority, Global Attack, Precision Engagement, and Agile Combat Support. It will complement a force structure that includes fighter, bomber, and support assets operating in an environment with F/A-22 and within the projected Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) architecture. The design is optimized for all-weather, precision air-to-ground employment to include direct attack on the most lethal SAMs and air defenses. The F-35 capitalizes on system commonality and modularity, maximizing affordability and logistical support for 21st century AEF employment.

- **Performance Parameters:**
  - USAF: F-35A (Conventional Take-Off and Landing (CTOL)), stealthy, multi-role aircraft (primary air-to-ground) replaces the F-16 and A-10, complements the F/A-22
  - USMC: F-35B (Short Take-Off Vertical Landing (STOVL)), multi-role strike fighter replaces the AV-8B and F/A-18
  - USN: F-35C carrier version multi-role, stealthy strike fighter to complement the F/A-18E/F
  - UK: F-35B STOVL aircraft to replace the Sea Harrier and GR-7

# F-117 Nighthawk

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Holloman AFB, NM
- **Current Inventory:** 55 (52 F-117A, 3 YF-117)
- **Contractors:**
  - Lockheed Martin Aeronautics Company (Airframe)
  - General Electric (Propulsion)
  - Raytheon (Major Subsystem)
- **Current Upgrades:** Single Configuration Fleet, Stores Management Processor, Smart Weapons Integration (EGBU-27, JDAM, WCMD), Mid-Life Improvement Programs
- **Future Upgrades:** Brooklyn Bridge Wing Structure, Combat Capability Sustainment Program (Expanded Data Transfer System (EDTS) replacement, cockpit display replacement, targeting system refurbishment), datalink, common data digital data recording capability



## Capabilities/Profile

- **Service Ceiling:** 35,000 Feet
- **Combat Range:** Unlimited with air refueling
- **Armament:**
  - 2-2000 Pound Laser Guided Bombs (GBU-27/GBU-10)
  - 2-2000 Pound Enhanced GBU-27 (LGB with GPS backup mode)
  - Internal Carriage
- **Dimensions:**
  - 43.3 Feet (Wing Span)
  - 63.9 Feet (Length)
  - 12.9 Feet (Height)
- **Weight:** 52,500 Pounds (max weight)

## Functions/Performance Parameters

- **Mission:** Penetrate dense threat environments and deliver precision weapons against high value, highly defended targets with pinpoint accuracy. Utilize low observable technology (RADAR, IR, visual and acoustic) to achieve vehicle signatures that significantly degrades enemy defenses. Provide rapid response to the National Command Authority.
- **Performance Parameters:**
  - Top Speed: 562 KCAS/0.9 Mach
  - Thrust: 9,040 pounds per engine

# HC-130P/N King

## Acquisition Status

- **Program Status:** Conversion program to deliver 1 additional aircraft converted from EC-130 configuration. Aircraft entered conversion Aug 03. Conversion program will continue with aircraft converted from EC-130J.
- **Unit Assignment:** Moody AFB, GA; Kirtland AFB, NM; Davis-Monthan AFB, AZ; Patrick AFB, FL (AFRC); Moffett FAF, CA (ANG); F.S. Gabreski Airport, NY (ANG); Kulis ANGB, AK (ANG)
- **Current Inventory:** 36 (includes 4 CSAR dedicated MC-130Ps flown by the ANG)
- **Projected Inventory:** 42 (by FY07)
- **Contractors:** Lockheed Martin (Greenville, SC)
- **Current Upgrades:** Integrated SATCOM, NVG compatible lighting (ARC), FLIR (ANG), E-TCAS (partial), personnel locator system (partial)
- **Future Upgrades:** Partial mods expanded fleet-wide, cockpit mods under C-130 Avionics Modernization Program (AMP), in-flight refueling (receiver) capability, tactical data receivers, HC-130 Simulator



## Capabilities/Profile

- **Service Ceiling:** 30,000 Feet
- **Combat Range:** 3,500 NM
- **Mission Crew Complement:** Three officers (pilot, co-pilot, navigator) and seven enlisted (flight engineer, communications specialist, two loadmasters, and three Pararescue specialists)
- **COMM:** UHF/VHF/SATCOM/Secure/Anti-jam
- **NAV:** Integrated INS/GPS/Doppler, digital low-power color radar
- **Self-Protection:** Radar and missile warning receivers, chaff & flare dispensers, cockpit armor
- **Dimensions:**
  - 132 Feet (Wing Span)
  - 99 Feet (Length)
  - 38 Feet (Height)
- **Weight:** 155,000 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission Statement:** The HC-130P/N King aircraft provides Combat Search and Rescue (CSAR)/Personnel Recovery (PR) by increasing the range of search and rescue helicopters through in-flight refueling and via the tactical delivery of Pararescue specialists (trained in emergency trauma medicine, harsh environment survival, and assisted evasion) and equipment to isolated personnel in permissive or hostile environments. Additional mission capabilities include airborne command and control for search and rescue operations, extended visual/electronic searches, the delivery of survival equipment over land or water, and unimproved airfield operations for survivor medical evacuation.
- **Performance Parameters:**
  - **Power Plant:** Four Allison T56-A-15 turboprop engines
  - **Thrust:** 4,910 shaft horsepower each engine
  - **Speed:** 289 miles per hour (464 kilometers per hour) at sea level

# HH-60G Pave Hawk

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Moody AFB, GA; Nellis AFB, NV; Kirtland AFB, NM; Kadena AB, Japan; NAS Keflavik, Iceland; Patrick AFB, FL (AFRC); Davis-Monthan AFB, AZ (AFRC, AD); Moffett FAF, CA (ANG); F.S. Gabreski Apt, NY (ANG); Kulis ANGB, AK (ANG), Hill AFB, UT (AFMC)
- **Current Inventory:** 102
- **Contractors:** Sikorsky (Prime Contractor)
- **Future Major Upgrades:** Upgraded Comm/Nav/Electronic Warfare Suite, External Gun mount, Flare/Chaff CMDS - Self Protection System , 701C Engine – Improved Durability Gearbox Upgrade, Structural Integrity Program, Dual Engine Contingency Power, Light Airborne Recovery System ARS-6 Ver- 12, Forward Looking Infra-Red System, Improved Night Vision Imaging System compatible External/Internal lighting
- **Purchase Requirements:** TBD



## Capabilities/Profile

- **Service Ceiling:** 14,200 Feet
- **Combat Range:** 500 NM (unlimited with air refueling)
- **Armament:** M-240 7.62 Machine gun, GAU-2C-7.62mm mini-gun, GAU-18 - .50 caliber machine gun
- **COMM:** UHF LOS, VHF LOS, Secure UHF SATCOM/DAMA, PLS, HQ-II
- **NAV:** Integrated INS/GPS/Doppler
- **Self-Protection:** Integrated Chaff/Flare/RWR, IR Jammer, Kevlar armor, Self-sealing fuel tanks
- **MSN Equip:** FLIR, OTH Tactical Receiver, Digital Moving Map/Threat Display, WX Radar, Hoist
- **Dimensions:**
  - 53 Feet (Main Rotor)
  - 64 Feet (Length)
  - 16 Feet (Height)
- **Maximum Gross Weight:** 22,000 Pounds

## Functions/Performance Parameters

- **Mission:** Primary operational mission is Combat Search and Rescue (CSAR)/Personnel Recovery (PR). The most rapidly deployable, long range, combat rescue helicopter in the Air Force inventory. Conduct day/night/marginal weather alert response missions to recover downed aircrew or other isolated personnel in hostile or permissive environments. Also performs disaster relief, Noncombatant Evacuation Operation, counter-drug, civil SAR, and Space Shuttle support.
- **Performance Parameters:** Mission flown at airspeeds between 120 and 150 kts. Can fly for 4 1/2 hours unrefueled. With air refueling, range is limited only by human factors. The HH-60G employs a sophisticated avionics system to enhance crew situational awareness and to avoid threats.

# Joint Unmanned Combat Air System (J-UCAS)



## Acquisition Status

- **Program Status:** Capability Demonstration Program with Operational Assessments
- **Unit Assignment:** Program Management Offices in Arlington VA, Patuxent River NAS MD, and Wright-Patterson AFB OH. Conducting demonstration testing at Edwards AFB CA and NAWCWD China Lake, CA
- **Production:** TBD
- **Current Inventory:** Two Boeing X-45A and one Northrop-Grumman X-47A demonstrators
- **Projected Inventory:** Three Boeing X-45C demonstrators and three Northrop Grumman X-47B demonstrators in FY07-FY09
- **Contractors:** Boeing for X-45; Northrop Grumman for X-47; Johns Hopkins University Applied Physics Laboratory for Common Systems Technologies Integrator/ Broker
- **Future Upgrades:** TBD
- **Purchase Requirements:** TBD

## Capabilities/Profile

- **Service Ceiling:** 40,000 Feet
- **Combat Range:** Combat Radius is 1,300 Nautical Miles with 30 minute loiter
- **Payload:** 4,500 Pounds, Modular Payload Bays
- **Armament:**
  - Up to 12 Small Diameter Bombs
  - 2-2000lb JDAM
  - 2-1000lb JDAM
  - 2-500lb JDAM
  - Other potential kinetic and non-lethal weapons
- **Dimensions (notional):**
  - X-45C*
    - 49.5 Feet (Wing Span)
    - 38.7 Feet (Length)
    - 7.7 Feet (Height)
  - X-47B*
    - 62.1 Feet (Wing Span)
    - 38.2 Feet (Length)
    - 9.9 Feet (Height)
- **Weight:**
  - X-45C*
    - 36,500 Pound-class (Gross Weight)
  - X-47B*
    - 42,000 Pound-class (Gross Weight)

## Functions/Performance Parameters

- **Mission:** The Joint Unmanned Combat Air Systems (J-UCAS) program is a joint DARPA/Air Force/Navy effort to demonstrate the technical feasibility, military utility and operational value of a networked system of high performance, weaponized unmanned air vehicles for effectively and affordably prosecuting 21st century combat missions, including Suppression of Enemy Air Defenses (SEAD), Electronic Attack, Persistent Strike, and penetrating, persistent Intelligence, Surveillance, and Reconnaissance within the emerging global command and control architecture.
- **Performance Parameters:**
  - Speed: 0.8M at 40K ft
  - X-45C - F404-102D Engine;
  - X-47B – F100-220 Engine
  - Combat Radius: 1000 nm with 2 hrs loiter

# KC-10 Extender

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** McGuire AFB, NJ; Travis AFB, CA
- **Current Inventory:** 59
- **Contractors**
  - Douglas Aircraft Corp  
- now Boeing (Airframe)
  - General Electric (Propulsion)
- **Future Major Upgrades:**  
Aircraft Modernization Program (AMP)



## Capabilities/Profile

- **Service Ceiling:** 42,000 Feet
- **Combat Range:** 10,000 NM (unrefueled ferry range) (unlimited with in-flight refueling)
- **Armament:** None
- **Dimensions:**
  - 165 Feet (Wing Span)
  - 181 Feet (Length)
  - 58 Feet (Height)
- **Maximum Gross Weight:**  
590,000 Pounds

## Functions/Performance Parameters

- **Mission Statement:** Air refueling and airlift support for deployment, employment, redeployment and joint/combined special operations.
- **Performance Parameters:**
  - Speed: 619 mph
  - Airlift role - can accommodate loads ranging from 27 pallets to a mix of 17 pallets and 75 passengers; can transport up to 75 people and 170,000 pounds of cargo 4,400 miles.
  - Air Refueling role equipped with both advanced aerial refueling boom and hose/drogue refueling systems; maximum fuel transfer rates to receiver aircraft of 1,100 gallons per minute for the boom system and 470 gallons per minute for the drogue system; can transfer 200,000 pounds of fuel to a radius of 2,200 miles.

# KC-135 Stratotanker

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** 9 Active Duty, 8 Reserve and 21 Guard bases (Portland OR transition from CSAR mission)
- **Current Inventory (all models):** 530
- **Contractors:**
  - Boeing (Airframe)
  - General Electric (Engines)
  - Pratt & Whitney (Engines)
- **Future Major Upgrades:** Global Air Traffic Management (GATM)



## Capabilities/Profile

- **Service Ceiling:** 50,000 Feet
- **Combat Range:** 11,015 (ferry range)
- **Armament:** None
- **Dimensions:**
  - 131 Feet (Wing Span)
  - 136 Feet (Length)
  - 42 Feet (Height)
- **Maximum Gross Weight:** 322,500 Pounds

## Functions/Performance Parameters

- **Mission Statement:** Principal mission is air refueling. The KC-135 greatly enhances the Air Force's capability to accomplish its missions of Global Reach and Global Power. Also provides aerial refueling support to Navy, Marine Corps and Allied aircraft.
- **Performance Parameters:**
  - Speed: 530 mph at 30,000 feet
  - Nearly all internal fuel can be pumped through the tanker's flying boom, the KC-135's primary fuel transfer method. A special shuttlecock-shaped drogue, attached to and trailed behind the flying boom, may be used to refuel aircraft fitted with probes. Can transfer 150,000 pounds of fuel to a radius of 1,500 mi.

# MC-130E Combat Talon

## Acquisition Status

- **Program Status:** Sustainment
- **Current Inventory:** 14 x MC-130E
- **Unit Assignment:** Duke Field, FL
- **Contractors:** Boeing for Integrated Weapon Systems Support (IWSS)
- **Future Upgrades:** Direct Infrared Counter Measure (DIRCM), C-130 Avionic Modernization Program (AMP), Common Avionics Architecture for Penetration (CAAP); ARC-222 SINCGARS Radios, ALE-47 Chaff & Flare system; High Power Fiber Optic Towed Decoy (HPFOTD)



## Capabilities/Profile

- **Service Ceiling:** 30,000 Feet
- **Combat Range:** Unlimited (air refuelable)
- **Primary Mission:** Infiltration, exfiltration and resupply of special operations forces
- **Crew Complement:** 9 - five officers (two pilots, two navigators and one electronic warfare officer) and four enlisted (one flight engineer, one radio operator and two loadmasters)
- **Dimensions:**
  - 132 Feet (Wing Span)
  - 99 Feet (Length)
  - 38 Feet (Height)
- **Weight:** 155,000 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission Statement:** The mission of the MC-130E Combat Talon is to provide global, day, night and adverse weather airdrop, airland, infiltration and exfiltration of personnel and equipment in support of U.S. and allied special operations forces. The MC-130E also has a deep penetrating helicopter refueling role during special operations missions.
- **Performance Parameters:**
  - **Power Plant:** Four Allison T56-A-15 Turboprops
  - **Thrust:** 4,910 shaft horsepower each engine
  - **Speed:** 289 miles per hour (464 kilometers per hour) at sea level

# MC-130H Combat Talon II



## Acquisition Status

- **Program Status:** Sustainment, 10 additional MC-130H buys planned (via C-130H2 conversions)
- **Current Inventory:** 22
- **Unit Assignment:** Hurlburt Field, FL; Kirtland AFB, NM; RAF Mildenhall, UK; Kadena AB, JP
- **Contractors:** Boeing for Integrated Weapon Systems Support (IWSS)
- **Future Upgrades:** Directional Infrared Counter Measure (DIRCM), C-130 Avionics Modernization Program (AMP), Common Avionics Architecture for Penetration (CAAP) and Helo Aerial Refueling capability (MCAR), ALE-47 Chaff & Flare system; High Power Fiber Optic Towed Decoy (HPFOTD); and RF Low Band Jammer

## Capabilities/Profile

- **Service Ceiling:** 30,000 Feet
- **Combat Range:** Unlimited (air refuelable)
- **Primary Mission:** Infiltration, exfiltration, and resupply of special operations forces
- **Crew Complement:** 7 - Two pilots, one navigator, one electronic warfare officer, one flight engineer, and two loadmasters
- **Dimensions:**
  - 132 Feet (Wing Span)
  - 100 Feet (Length)
  - 38 Feet (Height)
- **Max Takeoff Weight:** 155,000 Pounds

## Functions/Performance Parameters

- **Mission Statement:** The mission of the MC-130H Combat Talon II is to provide global, day, night and adverse weather airdrop, airland, infiltration and exfiltration of personnel and equipment in support of U.S. and allied special operations forces.
- **Performance Parameters:**
  - **Power Plant:** Four Allison T56-A-15 Turboprops
  - **Thrust:** 4,910 shaft horse power each engine
  - **Speed:** 300 miles per hour (480 kilometers per hour) at sea level

# MC-130P Combat Shadow

## Acquisition Status

- **Program Status:** Sustainment
- **Current Inventory:** 27
- **Unit Assignment:** Kirtland AFB, NM; Eglin AFB, FL; RAF Mildenhall, UK; Kadena AB, JP; Moffet Field, CA
- **Contractors:** Boeing
- **Future Upgrades:** Future cockpit mods under C-130 Avionics Modernization Program (AMP), ALE-47 Chaff & Flare system, Environmental Control System (ECS)



## Capabilities/Profile

- **Service Ceiling:** 30,000 Feet
- **Combat Range:** 3,500 NM
- **Primary Mission:** Air refueling of special operations helicopters
- **Crew Complement:** 8 - Four officers (pilot, co-pilot, primary navigator, secondary navigator), and four enlisted (flight engineer, communications systems operator and two loadmasters)
- **Dimensions:**
  - 132 Feet (Wing Span)
  - 99 Feet (Length)
  - 38 Feet (Height)
- **Weight:**
  - 155,000 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission Statement:** The MC-130P Combat Shadow flies global, day or night, low-level missions into politically sensitive, hostile, and/or denied territory to provide clandestine air refueling for special operations helicopters. Additional mission capabilities include personnel recovery, as well as night-vision goggle airland and airdrop of personnel and equipment in support of U.S. and allied special operations forces.
- **Performance Parameters:**
  - **Power Plant:** Four Allison T56-A-15 Turboprops
  - **Thrust:** 4,910 shaft horsepower each engine
  - **Speed:** 289 miles per hour (464 km per hour) at sea level

# MH-53J/M Pave Low III/IV

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Hurlburt Field, FL; Kirtland AFB, NM; RAF Mildenhall, UK
- **Current Inventory:** 32
- **Contractors:**
  - Sikorsky (Airframe)
  - General Electric (Propulsion)
  - Texas Instruments (Terrain Following/Terrain Avoidance [TF/TA] radar and Forward-Looking Infrared [FLIR])
- **Future Upgrades:** Directional Infrared Countermeasures (DIRCM), APX-118 IFF, ALE-47 Chaff & Flare System



## Capabilities/Profile

- **Service Ceiling:** 16,000 Feet
- **Combat Range:** 600 nautical miles; range can be extended through refueling
- **Crew Complement:** 6 - Two officers (pilot, co-pilot), and four enlisted (two flight engineers and two aerial gunners)
- **Armament:** Any combination of three 7.62mm miniguns and .50 caliber machine guns
- **Dimensions:**
  - 72 Feet (Rotor Diameter)
  - 88 Feet (Length)
  - 25 Feet (Height)
- **Max Takeoff Weight:** 46,000 pounds

## Functions/Performance Parameters

- **Mission Statement:** Low-level, long-range, undetected penetration into denied areas, day or night, in adverse weather, for infiltration, exfiltration, and resupply of special operations forces. Missions are almost always conducted under the cover of darkness, and are frequently conducted under adverse weather conditions requiring extended flight operations as low as 50 feet using Night Vision Goggles or Instrument Meteorological Conditions as low as 100 feet Above Ground Level. Missions involve deep penetrations of hostile areas, at extreme ranges, without escort. The MH-53M employs a sophisticated avionics system to enhance crew situational awareness and to avoid threats.
- **Performance Parameters:** Normal cruise is 110 kts (125 mph) at sea level.

# MQ-1B Predator

## Acquisition Status

- **Program Status:** Production/Operational
- **Unit Assignment:** Indian Springs AFAF, NV
- **Production:** Continues through FYDP
- **Current Inventory:** 62 Air Vehicles
- **Contractors:**
  - General Atomics ASI (Prime)
  - Northrop Grumman Synthetic Aperture Radar (SAR)
  - Raytheon (Multi-Spectral Targeting System ball and video sensors, laser designator)
  - L3Com (Satellite Communications)
- **Future Upgrades:**
  - Tactical Common Data Link
  - Low Light TV
  - Multiple Aircraft Control



## Capabilities/Profile

- **Service Ceiling:** 25,000 feet
- **Combat Range:** 18 to 24 hours of endurance
- **Armament:** AGM-114 Hellfire
- **Dimensions:**
  - 49 feet (Wing Span)
  - 27 feet (Length)
  - 7 feet (Height)
- **Weight:** 2,250 pounds (Maximum T/O Gross Weight)

## Functions/Performance Parameters

- **Mission:** True multi-role, endurance remotely piloted aircraft providing airborne intelligence, surveillance, and reconnaissance coupled with laser designation for use with precision guided munitions. Sensors include Electro-Optic/Infrared (EO/IR) and SAR. Provides real-time full motion video through either line-of-sight or satellite communications.
- **Performance Parameters:**
  - Max Speed: 120 knots (endurance cruise at 70 knots)
  - Typical operating altitude: 15,000 feet
  - Maximum operating altitude: 25,000 feet
  - Endurance: Nominally 24 hours

# MQ-9 Predator B

## Acquisition Status

- **Program Status:** Development/Production/Operational
- **Unit Assignment:** In flight test at El Mirage, CA
- **Production:** Continues through FYDP
- **Current Inventory:** 5 Air Vehicles
- **Contractors:**
  - General Atomics ASI (Prime)
  - Northrop Grumman Synthetic Aperture Radar (SAR)
  - Raytheon (Multi-Spectral Targeting System ball and video sensors, laser designator)
  - L3Com (Satellite communications)
- **Future Upgrades:** Requirements document in coordination



## Capabilities/Profile

- **Service Ceiling:** 45,000 feet
- **Combat Range:** 16 to 20 hours of endurance
- **Armament:** GBU-12 successfully tested
- **Dimensions:**
  - 64 feet (Wing Span)
  - 36 feet (Length)
  - 12 feet (Height)
- **Weight:** First two aircraft at 7,500 pounds; all subsequent aircraft are 10,000 pounds (Maximum T/O Gross Weight)

## Functions/Performance Parameters

- **Mission:** True multi-role, endurance remotely piloted aircraft providing airborne intelligence, surveillance, and reconnaissance coupled with laser designation for use with precision guided munitions. Sensors include Electro-Optic/Infrared and SAR. Provides real-time full motion video through either line-of-sight or satellite communications.
- **Performance Parameters:**
  - Max Speed: 225 knots (endurance cruise at 190 knots)
  - Typical operating altitude: 35,000 feet
  - Maximum operating altitude: 45,000 feet
  - Endurance: Nominally 20 hours

# Personnel Recovery Vehicle (PRV)

## Acquisition Status

- **Program Status:** Program start in FY04
- **Unit Assignment:** TBD
- **Production:** 2011-2021
- **Current Inventory:** 0
- **Projected Inventory:** 132
- **Contractors:**
  - TBD - Source selection Contract award in FY06
- **Purchase Requirements:** 132 aircraft beginning in FY10

## Capabilities/Profile

- **Service Ceiling:** 13,000 Feet
- **Combat Range:** Unlimited with air refueling
- **Armament:**
  - TBD
- **Dimensions:**
  - TBD
- **Weight:**
  - TBD
- **Speed:** 135 knots cruise threshold requirement - Increment 1 (185 Knots Increment 2)
- **Payload:** 4 litter patients, 3700 pounds

## Functions/Performance Parameters

- **Mission Statement:** The PRV will provide Personnel Recovery (PR) forces with a medium-lift vertical take-off and landing aircraft that is quickly deployable and capable of main base and austere location operations for worldwide PR missions.
- **Performance Parameters:**
  - **Range:** 325 nm combat radius
  - **Speed:** 135 knots cruise threshold requirement - Increment 1 (185 knots Increment 2)
  - **Hover:** Hover out-of-ground-effect 6000 feet, 95 degrees F, mid-mission gross weight
  - **Other:** Terrain following, terrain avoidance, adverse weather capable

# RC-135V/W Rivet Joint

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Offutt AFB, NE
- **Current Inventory:** 16 + 2 Trainers
- **Contractors:**
  - Boeing (Airframe)
  - General Electric CFM56-2B (F108) engines replacing legacy Pratt & Whitney (Propulsion)
  - L<sup>3</sup>COM (Major Subsystems)
- **Future Upgrades:** Only five of 18 remaining to be re-engined – fleet complete Sept 05, Joint SIGINT Avionics Family (JSAF), Avionics, Primary Mission Equipment, on-going modernization.



## Capabilities/Profile

- **Service Ceiling:** 35,000 Feet
- **Combat Range:** 8-10 hours unrefueled
- **Armament:** None
- **Dimensions:**
  - 131 Feet (Wing Span)
  - 136 Feet (Length)
  - 42 Feet (Height)
- **Weight:** 299,000 Pounds (Max)

## Functions/Performance Parameters

- **Mission Statement:** Rivet Joint (RC-135V/W) is a self-contained collection, processing, analysis and dissemination system. Provides direct tactical Signals Intelligence (SIGINT) support to theater/component commanders.
- **Performance Parameters:**
  - Speed: 500 mph

# RC-135S Cobra Ball



## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Offutt AFB, NE
- **Current Inventory:** 3 + 1 Trainer
- **Contractors:**
  - Boeing (Airframe)
  - General Electric CFM56-2B (F108) engines replacing legacy Pratt & Whitney (Propulsion)
  - L<sup>3</sup> COM, Textron (Major Subsystems)
- **Future Upgrades:** One of three now re-engined – complete in Feb 06, Avionics, Primary Mission Equipment, on-going modernization

## Capabilities/Profile

- **Service Ceiling:** 35,000 Feet
- **Combat Range:** 8-10 hours unrefueled
- **Armament:** None
- **Dimensions:**
  - 131 Feet (Wing Span)
  - 140 Feet (Length)
  - 42 Feet (Height)
- **Weight:** 299,000 Pounds (Max)

## Functions/Performance Parameters

- **Mission Statement:** Cobra Ball (RC-135S) is a self-contained Measurement and Signature Intelligence (MASINT) collection platform, providing Scientific and Technical (S&T) assessments of foreign ballistic missiles and assisting in treaty verification.
- **Performance Parameters:**
  - Speed: 500 mph

# RC-135U Combat Sent

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Offutt AFB, NE
- **Current Inventory:** 2
- **Contractors:**
  - Boeing (Airframe)
  - General Electric CFM56-2B (F108) engines replacing legacy Pratt & Whitney (Propulsion)
  - L<sup>3</sup> COM, Harris Information Systems (Major Subsystems)
- **Future Upgrades:** One of two now re-engined – complete Dec 05, Avionics, Primary Mission Equipment Primary Mission Equipment, on-going modernization



## Capabilities/Profile

- **Service Ceiling:** 35,000 Feet
- **Combat Range:** 8-10 hours unrefueled
- **Armament:** None
- **Dimensions:**
  - 135 Feet (Wing Span)
  - 136 Feet (Length)
  - 42 Feet (Height)
- **Weight:** 299,000 Pounds (Max)

## Functions/Performance Parameters

- **Mission Statement:** Combat Sent (RC-135U) is a Scientific & Technical Signals Intelligence (SIGINT) collector for information used in the development of advanced weapon systems and dynamic reprogramming of radar warning gear.
- **Performance Parameters:**
  - Speed: 500 mph

# RQ-4A/B Global Hawk

## Acquisition Status

- **Program Status:** Currently in Engineering, Manufacturing, and Development and production phases; the Advanced Concept Technology Demonstration (ACTD) phase is complete
- **Unit Assignment:** Main Operating Base is Beale AFB, CA. Production aircraft are at Edwards AFB supporting flight test and Beale AFB supporting maintenance training.
- **Production:** Low Rate Initial Production
- **Current Inventory:** 8 air vehicles 4 x ACTD aircraft, 4 x production aircraft (RQ-4A)
- **Contractors:** Northrop Grumman Information Systems (Prime)
- **Future Upgrades:** Signals Intelligence (SIGINT), Improved Electro-Optic/Infrared (EO/IR) and Synthetic Aperture Radar (SAR), Multi-Platform Radar Technology Insertion Program Surveillance Radar (MP-RTIP), 25 KVA electrical power, payload increase to 3,000 lbs, and communication and ground station enhancements
  - RQ-4B's with the indicated upgrades are expected to begin delivery in FY06
- **Purchase Requirements:** 51 aircraft (includes attrition reserve) and 10 ground stations purchased through 2011



## Capabilities/Profile

### RQ-4A:

- **Service Ceiling:** 60,000 feet
- **Combat Range:** 10,000 nautical miles
- **Payload:** 1,960 pounds (SAR & EO/IR Sensors)
- **Armament:** None
- **Avg. Speed at 60,000 feet:** 340 KTAS
- **Dimensions:**
  - 116 feet (Wing Span)
  - 44 feet (Length)
  - 15 feet (Height)
- **Weight:** 26,750 pounds (Gross Weight)

### RQ-4B:

- **Service Ceiling:** 60,000 feet
- **Combat Range:** 10,000 nautical miles
- **Payload:** 3,000 pounds (SAR & EO/IR + SIGINT or MP-RTIP)
- **Armament:** None
- **Avg. Speed at 60,000 feet:** 310 KTAS
- **Dimensions:**
  - 131 feet (Wing Span)
  - 48 feet (Length)
  - 15 feet (Height)
- **Weight:** 32,250 pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission:** Global Hawk will provide continuous, all-weather, day/night, wide area surveillance to support the tactical warfighter. It is designed for long endurance, high altitude, standoff, imagery and signals intelligence collection capabilities. Global Hawk will operate in low-to-moderate air defense threat environments with the ability to fly above, standoff, and look into high threat areas. Sensors include EO/IR and SAR with Ground Moving Target Indicator mode, and SIGINT.
- **Performance Parameters**
  - Speed: 310 – 340 KTAS
  - Typical operating altitude: 55-60,000 Feet
  - Endurance: Over 28 hours

# T-1A Jayhawk

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Randolph AFB, TX; Vance AFB, OK; Laughlin AFB, TX; and Columbus AFB, MS
- **Production:** 1989–1995
- **Current Inventory:** 180
- **Contractors:**
  - Raytheon (Airframe)
  - Pratt & Whitney (Engines)
  - Collins (Avionics)
  - Quintron (Simulators)
  - McDonnell Douglas (Integration)



## Capabilities/Profile

- **Service Ceiling:** 41,000 Feet
- **Combat Range:** Over 2,100 NM
- **Armament:** None
- **Dimensions:**
  - 43 Feet, 6 Inches (Wing Span)
  - 48 Feet, 5 Inches (Length)
  - 13 Feet, 11 Inches (Height)
- **Max Takeoff Weight:** 16,100 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission Statement:** Used by Air Education and Training Command as an advanced aircraft to train student pilots who will fly airlift, bomber, or tanker aircraft and student navigators who will fly on airlift or tanker aircraft.
- **Performance Parameters:**
  - Medium range, twin-engine jet
  - Top Speed: 539 mph (Mach 0.78)
  - Thrust: 2,900 pounds each engine

# T-6A Texan II

## Acquisition Status

- **Program Status:** Full-rate production
- **Unit Assignment:** USAF: Randolph AFB, TX; Moody AFB, GA; Laughlin AFB, TX; Vance AFB, OK; Columbus AFB, MS; Sheppard AFB, TX; USN: NAS Whiting, FL; NAS Corpus Christi, TX; NAS Pensacola, FL
- **Production:** Through FY08 (USAF) and FY14 (USN)
- **Current Inventory:** 154 (127 USAF and 27 USN)
- **Projected Inventory:** 454 USAF; 328 USN
- **Contractors:**
  - Raytheon (Prime/Airframe)
  - Pratt & Whitney (Propulsion)
  - Martin Baker (Ejection)
  - Honeywell International (Avionics)
  - Flight Safety (GBTS)
- **Future Upgrades:** Minor enhancements (e.g., to environmental control system, UHF radio)
- **Purchase Requirements:** For FY04, acquire 52 USAF aircraft; continue Ground Based Training System (GBTS) acquisition



## Capabilities/Profile

- **Maximum Operating Altitude:** 31,000 Feet
- **Combat Range:** 800+ NM
- **Armament:** N/A
- **Dimensions:**
  - 33.4 Feet (Wing Span)
  - 33.3 Feet (Length)
  - 10.6 Feet (Height)
- **Weight:** 6,500 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission Statement:** Provides entry-level flight and ground based training for future USAF and USN pilots. Replaces USAF T-37B and USN T-34C primary trainer aircraft and associated Ground Based Training Systems (GBTS).
- **Performance Parameters:**
  - Power Plant: 1,100 horsepower Pratt & Whitney Canada PT6A-68 turbo-prop engine
  - Speed: 320 mph

# T-37B Tweet

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Randolph AFB, TX; Sheppard AFB, TX; Vance AFB, OK; Columbus AFB, MS; and Laughlin AFB, TX
- **Current Inventory:** 419
- **Projected Inventory:** Being phased out by the T-6A
- **Contractors:**
  - Cessna (Airframe)
  - Continental (Engines)
  - Sabreliner Corp (Structural Life Extension Program)
- **Future Upgrades:** None



## Capabilities/Profile

- **Service Ceiling:** 35,000 Feet
- **Combat Range:** 400 NM (460 Miles)
- **Armament:** None
- **Dimensions:**
  - 33 Feet, 8 Inches (Wing Span)
  - 29 Feet, 3 Inches (Length)
  - 9 Feet, 2 Inches (Height)
- **Max Takeoff Weight:** 6,625 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission Statement:** Primary trainer in undergraduate pilot training, undergraduate navigator and tactical navigator training.
- **Performance Parameters:**
  - Twin-engine jet
  - Top Speed: 315 mph (Mach 0.4 at sea level)
  - Thrust: 1,025 pounds each engine

# T-38A/AT-38B/T-38C Talon

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Randolph AFB, TX; Sheppard AFB, TX; Vance AFB, OK; Columbus AFB, MS; and Laughlin AFB, TX
- **Current Inventory:** 509
- **Contractors:**
  - Northrop Grumman (Airframe)
  - General Electric (Engines)
- **Future Upgrades:**
  - Pacer Classic, the structural life extension program, is integrating 10 modifications, including major structural renewal, into one process
  - Avionics Upgrade Program
  - Propulsion Modernization Program (PMP)



## Capabilities/Profile

- **Service Ceiling:** Above 55,000 Feet
- **Combat Range:** 870 Nautical Miles (1,000 Miles)
- **Armament:** AT-38B has provisions for external armament
- **Dimensions:**
  - 25 Feet, 3 Inches (Wing Span)
  - 46 Feet, 4.5 Inches (Length)
  - 12 Feet, 10.5 Inches (Height)
- **Max Takeoff Weight:** 12,500 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission Statement:** Used primarily by Air Education and Training Command as an advanced aircraft for undergraduate pilot training and pilot instructor training. Air Combat Command, Air Force Material Command, and NASA also use the T-38 in various roles.
- **Performance Parameters:**
  - Twin-engine, high-altitude, supersonic jet
  - Top Speed: 812 mph (Mach 1.08 at sea level)
  - Thrust: 2,900 pounds with afterburners

# T-43A

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Randolph AFB, TX
- **Production:** 1971–1973
- **Current Inventory:** 9
- **Contractors:**
  - Boeing (Airframe)
  - Pratt & Whitney (Engines)



## Capabilities/Profile

- **Service Ceiling:** 37,000 Feet
- **Combat Range:** 2,604 NM
- **Armament:** None
- **Dimensions:**
  - 93 Feet (Wing Span)
  - 100 Feet (Length)
  - 37 Feet (Height)
- **Max Takeoff Weight:** 115,000 Pounds

## Functions/Performance Parameters

- **Mission Statement:** Used by Air Education and Training Command to train navigators for strategic and tactical aircraft.
- **Performance Parameters:**
  - Medium range, jet aircraft
  - Military training version of the Boeing 737-200
  - Speed: 535 mph (Mach .72)
  - Thrust: 14,500 lbs per engine

# U-2S Dragon Lady

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Beale AFB, CA
- **Current Inventory:** 34 (5-two seat trainers, 29 single seat)
- **Contractors:**
  - Lockheed Martin (Airframe)
  - GE (Propulsion)
  - Raytheon, Northrop-Grumman, L-3Com, Sanders, BF Goodrich Aero, BAE (Major Subsystems)
- **Future Upgrades:** Cockpit Modernization, Advanced Defensive System, Dual Data Link, Link 16, Airborne Signals Intelligence Payload (ASIP)



## Capabilities/Profile

- **Service Ceiling:** >70,000 Feet
- **Combat Range:** >7,000 NM
- **Armament:** None
- **Dimensions:**
  - 104 Feet (Wing Span)
  - 63 Feet (Length)
  - 16 Feet (Height)
- **Weight:** 40,000 Pounds (Gross Weight)

## Functions/Performance Parameters

- **Mission Statement:** Conducts high-altitude, deep-look, multi-INT reconnaissance and surveillance utilizing state of the art Imagery Intelligence (IMINT) and Signals Intelligence (SIGINT) sensors. Provides Near Real Time (NRT) worldwide battlespace awareness and time critical targeting.
- **Performance Parameters:**
  - Speed: 475 mph
  - Sortie Duration: >10 Hours
  - Airframe Service life: >CY2050 based on current utilization rates
  - Payload: Advanced Synthetic Aperture Radar System (ASARS-2), ASARS-2A, Senior Year Electro-optical Reconnaissance System (SYERS), SYERS-2, Optical Bar Camera (OBC) wet film, and SIGINT suite. SIGINT can be carried simultaneously with any one of the imaging sensors. Total payload capacity is 5,000 pounds.

# UH-1N Helicopter (Variants: UH-1N, IH/Vm UV-18B)

## Acquisition Status

- **Program status:** Sustainment  
Inventory: Active, 62  
Entered inventory: 1970 to provide search and rescue capabilities.

- Military version of the Bell 212 UH-1N: replaced HH-1H's and UH-1F's supporting the missile wings due to the greater safety and capability offered by twin engines.



## Capabilities/Profile

- **Combat Range:** 300 Nautical Miles
- **Dimensions:**
  - 57.25 Feet (Length)
  - 9.5 Feet (Width)
  - 12.8 Feet (Height)
- **Power Plant:** Two Pratt and Whitney T400-CP-400 engines (1800 shaft hp)
- **Max Gross Weight:** 10,500 Pounds

## Functions/Performance Parameters

- **Mission Statement:** 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 security.
- **Performance Parameters:**
  - **Top Speed:** 149 mph
  - **Cruise Speed:** 103-115 mph
- **Load:** 8 passengers

# VC-25A

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Andrews AFB, MD
- **Current Inventory:** 2
- **Contractors:**
  - Boeing (Airframe and depot maintenance)
  - General Electric (Propulsion)
  - L3 Comm (Communications)
- **Military Variant of:** Boeing 747-200
- **Current Major Upgrades:** Presidential Data System (PDS)



## Capabilities/Profile

- **Ceiling:** 45,100 Feet
- **Combat Range:** 6,800 Nautical Miles
- **Armament:** None
- **Dimensions:**
  - 196 Feet (Wing Span)
  - 232 Feet (Length)
  - 63 Feet (Height)
- **Maximum Takeoff Weight:** 833,000 lbs

## Functions/Performance Parameters

- **Mission:** Transportation for the President of the United States.
- **Performance Parameters:**
  - Cruise Speed: 560 mph (Mach .85)
  - Load: 76 passengers and 26 crew

# WC-I35 Constant Phoenix

## Acquisition Status

- **Program Status:** Sustainment
- **Unit Assignment:** Offutt AFB, NE
- **Current Inventory:** 1
- **Contractors:**
  - Boeing (Airframe)
  - Pratt-Whitney (Propulsion)
  - Raytheon, Harris Information Systems (Major Subsystems)
- **Future Upgrades:** Migrating to Advanced Atmospheric Research Equipment (AARE)



## Capabilities/Profile

- **Service Ceiling:** 35,000 Feet
- **Combat Range:** 8-10 hours unrefueled
- **Armament:** None
- **Dimensions:**
  - 135 Feet (Wing Span)
  - 136 Feet (Length)
  - 42 Feet (Height)
- **Weight:** 299,000 Pounds (Max)

## Functions/Performance Parameters

- **Mission Statement:** Constant Phoenix conducts world-wide nuclear air sampling.
- **Performance Parameters:**
  - Speed: 500-mph

# MUNITIONS



# AGM-65 Maverick

## Acquisition Status

- **Program Status:** AGM-65H/K modification production
- **Current Inventory:**
  - 1,736 AGM-65A/Bs
  - 5,801 AGM-65Ds
  - 3,670 AGM-65G/G2s
  - 890 AGM-65H/Ks
- **Contractor:** Raytheon
- **Ongoing Seeker Upgrades:**
  - 1,500-2,000 AGM-65Gs (IR seeker) and AGM-65Bs (EO seeker) will be converted to AGM-65Ks/Hs respectively (Varies with available AF funding and Raytheon Foreign Military Sales exchange credits toward seeker upgrades).
  - Goal is a 70/30 mix of IR (D/G/G2) and EO (H/K).



## Capabilities/Profile

- **Combat Range:** 10 NM (H/K)
- **Warheads:**
  - 300lb Blast/Frag - AGM-65G/G2/K
  - 125lb Shaped - AGM-65A/B/D/H
- **Dimensions:**
  - 97 Inches (Length)
  - 12 Inches (Diameter)
- **Weight:**
  - 500lb (AGM-65A/B/D/H)
  - 650lb (AGM-65G/K)

## Functions/Performance Parameters

- Air to surface launch and leave missile
- Electro-optical (EO) or infrared (IR) guidance
- Platforms: A-10, F-16, F-15E
- Primary targets: Armor, vehicles, bunkers, air defense

# AGM-86B Air Launched Cruise Missile (ALCM)

## Acquisition Status

- **Program Status:** Sustainment
- **Production:** 1980-1986
- **Current Inventory:** 974
- **Manufacturer:** Boeing
- **Future Upgrades:**
  - Service Life Extension Program (SLEP) extends ALCM service life to 2030
  - Form, Fit, Function Replacement - No enhanced capabilities
  - CALCM/ALCM Test Instrumentation Kit
    - RDT&E - FY00
    - Procurement - FY05
  - Thermal Battery and Pyrotechnic Device Replacement
    - Procurement - FY01-FY08



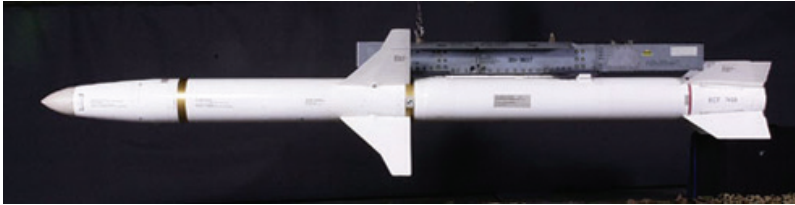
## Capabilities/Profile

- **Combat Range:** 1,500+ Miles
- **Armament:** W80-1 warhead – undergoing W80 Life Extension Program (LEP)
- **Dimensions:**
  - 20.75 Feet (Length)
  - 12 Feet (Wingspan)
  - 2 Feet (Diameter)
- **Weight:** 3,150 Pounds

## Functions/Performance Parameters

- **Mission:** Subsonic, highly accurate, long range, air-to-surface strategic nuclear missile. The ALCM is designed to evade air and ground-based defenses in order to strike targets at any location within any enemy's territory.
- **Performance Parameters:**
  - Speed: 550 mph

# AGM-88 High Speed Anti-Radiation Missile (HARM)



## Acquisition Status

- **Program Status:** Sustainment
- **Current Inventory:** 7,272
- **Contractor:** Raytheon

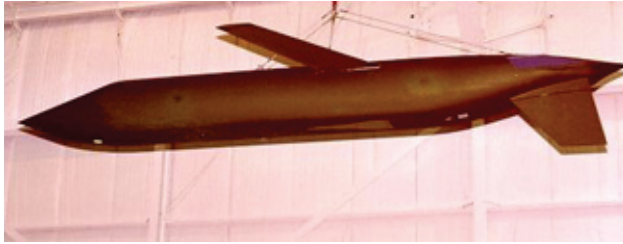
## Capabilities/Profile

- **Combat Range:** <60 NM
- **Warhead:**
  - 145 lb Fragmentation Warhead {NEW 45.2 lbs}
  - Block III/IIIA - 25,000 steel cubes
  - Block IV/V - 14,000 tungsten cubes
- **Dimensions:**
  - 164 Inches (Length)
  - 10 Inches (Diameter)
- **Weight:** 800 Pounds

## Functions/Performance Parameters

- **Mission:** Tactical Anti-Radiation Missile used to destroy or suppress radar threats at standoff range. Block IIIA/V missile adds limited geo-specificity and provides a significant step in countering rapidly improving threats and limiting collateral damage. AGM-88F will have GPS quality accuracy, increasing probability of kill and allowing precise geo-specificity.
- **Performance Parameters:**
  - Accurate
  - Adverse Weather Capability
  - USAF platform F-16C/CJ
  - Navy platform F/A-18 and EA-6B

# AGM-129A Advanced Cruise Missile (ACM)



## Acquisition Status

- **Program Status:** Sustainment
- **Production:** 1987–1994
- **Manufacturer:** General Dynamics, Hughes, and Raytheon
- **Current Inventory:** 402
- **Future Upgrades:**
  - Service Life Extension Program (SLEP) extends ACM service life to 2030
    - Form, Fit, Function Replacement - No enhanced capabilities
  - Joint Test Instrumentation Kit (JTIK) Test Door Modification
    - RDT&E - FY01
    - Procurement - FY02
  - Thermal Battery And Pyrotechnic Device Replacement
    - Procurement - FY01–FY08
  - PE2 Card Repair - FY01-FY08
  - Guidance Set Card Repair – FY05-FY11

## Capabilities/Profile

- **Combat Range:** 2000+ NM
- **Armament:** W80-1 warhead – undergoing W80 Life Extension Program (LEP)
- **Dimensions:**
  - 20.8 Feet (Length)
  - 2.4 Feet (Diameter)
  - 10 Feet (Wingspan)
- **Weight:** 3,700 Pounds

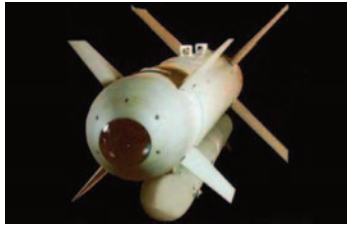
## Functions/Performance Parameters

- **Mission:** Subsonic, low-observable air-to-surface strategic nuclear missile with significant range, accuracy and survivability improvements over the ALCM. The ACM is designed to evade air and ground-based defenses in order to strike heavily defended, hardened targets at any location within an enemy's territory.
- **Performance Parameters:**
  - Speed: Mach .45 - .81

# AGM-130 Standoff Attack Weapon

## Acquisition Status

- **Program Status:** Sustainment
- **Current Inventory:** 402
- **Contractor:** Boeing
- **Future Upgrades:** None



## Capabilities/Profile

- **Combat Range:** >30 NM
- **Warhead:**
  - Blast/Frag: Mk-84
  - Penetrator: BLU-109
- **Dimensions:**
  - 156 Inches (Length)
  - 18 Inches (Diameter)
- **Weight:** 3,000 Pounds

## Functions/Performance Parameters

- **Mission:** Solid rocket powered GBU-15. Autonomous INS/GPS Mid-Course Guidance provides adverse weather capability and backup for man-in-the-loop features. Weapon uses TV or IR Terminal Seeker. Provides only fielded Air Force Standoff Outside Point Defense weapon with a 2,000-pound warhead. Integrated on the F-15E Strike Eagle.
- **Performance Parameters:**
  - Precise (<3 meter circular error probable (CEP))
  - Adverse Weather Capability
  - USAF platform F-15E

# AIM-7M Sparrow

## Acquisition Status

- **Program Status:** Sustainment
- **OPR:** NAVAIRSYCOM PMA-259
- **AF Mgmt/Eng OPR:** WR-ALC/LMM
- **Current Inventory:** 2,710
- **Contractors:**
  - Raytheon
  - General Dynamics



## Capabilities/Profile

- **Guidance:** Semi-Active Radar
- **Diameter:** 8 Inches
- **Length:** 12 Feet
- **Weight:** 500 Pounds
- **Warheads:**
  - Blast/Frag: WAU-17
  - Continuous Rod: WAU-10
- **Fuze:** Proximity RF
- **Propulsion:** MK-58 Rocket Motor (4.5 sec Boost; 11 sec Sustain)
- **Launcher:** LAU-106A
- **Speed:** More than 2,660 mph
- **Combat Range:** More than 30 NM

## Functions/Performance Parameters

- **Mission:** The AIM-7M Sparrow is a supersonic, medium range, semi-active radar-guided air-to-air missile with a high explosive warhead.
- **Performance Parameters**
  - Joint Project between Navy and Air Force
  - All Altitude Capability
  - All Weather Capability
  - All Aspect Capability
  - Carriage Options: F-14, F-15, F-16ADF, F-18
  - Radar Guidance Required Throughout Time Of Flight (TOF)
  - AIM-7M H-Build: Home-On-Jam Capable

# AIM-9M Sidewinder

## Acquisition Status

- **Program Status:** Sustainment
  - OPR: NAVAIRSYCOM PMA-259
  - AF Mgmt/Eng OPR: WR-ALC/LMM
- **Current Inventory:** 5,787
- **Contractors:**
  - Raytheon
  - General Dynamics



## Capabilities/Profile

- **Guidance:** Passive Infrared Homing
- **Diameter:** 5 Inches
- **Length:** 113 Inches
- **Weight:** 191 Pounds
- **Warheads:** Annular Blast/Frag
- **Fuze:** Contact and Active Optical
- **Propulsion:** MK-36 Rocket Motor
- **Speed:** Supersonic
- **Combat Range:** 8.7+ NM

## Functions/Performance Parameters

- **Mission:** The AIM-9M Sidewinder is a supersonic, short range, passive infrared-guided air-to-air missile with a high explosive warhead.
- **Performance Parameters:**
  - Joint Project between Navy and Air Force
    - All Altitude Capability
    - All Aspect Capability
    - Launch and Leave Capability
  - Platform Options: A-10, F-14, F-15, F-16, F-16 ADF, F-18

# AIM-9X

## Acquisition Status

- **Program Status:** Production/Sustainment
  - Initial fielding in-progress
  - Units at Elmendorf, Lakenheath and Mountain Home
- **Production:** MS III approved May 04
  - LRIP 1/2/3 contracts awarded Nov 00/Nov 01/Nov 02
  - LRIP 4 contract awarded Mar 04
  - FRP-1 contract awarded Nov 04
- **Current Inventory:** 377 AF, 310 Navy
- **Contractor:** Raytheon Systems Company
- **Future Upgrades:** P3I Starting in FY05



## Capabilities/Profile

- **Length:** 119 Inches
- **Diameter:** 5 Inches
- **Weight:** 188 Pounds
- **Warhead:** Annular Blast/Frag
- **Fuze:** Contact/Active Optical (AOTD)
- **Propulsion:** MK-36 Rocket Motor
- **Speed:** Supersonic
- **Combat Range:** Classified

## Functions/Performance Parameters

- **Mission:** The AIM-9X (Sidewinder) short-range air-to-air missile program provides a launch and leave air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft.
- **Key Performance Parameters:**
  - Joint Project between Navy and Air Force
  - Improved IR Countermeasure Performance
  - Improved Probability of Kill (Pk)
  - Highly Maneuverable Airframe
  - High Off-boresight Acquisition and Track
  - Day/Night Capability
  - Lead Test Platforms: F-15C and F/A-18C/D
  - Follow-on Platforms: F-16, F/A-22, F/A-18E/F, F-35, and FMS
  - Integration with Joint Helmet Mounted Cueing System (JHMCS)

# AIM-120 (AMRAAM)

## Advanced Medium Range Air-to-Air Missile

### Acquisition Status

- **Program Status:** Production with Pre-Planned Product Improvement (P3I) Program
- **Production:** Continuing
- **Current bought to date:** 9,269 (AF and USN)
- **Contractor:** Raytheon Company
- **Future Upgrades:** P3I Program will include improved kinematics, High Off-Boresight capability, third party targeting, electronic protection, and improved weapon effectiveness. Replacing AIM-120 A and B variants which are going out of warranty and providing the warfighter with the best capability.



### Capabilities/Profile

- **Guidance:** Inertial/Command, Inertial & Active Radar
- **Diameter:** 7.15 inches
- **Length:** 144 inches
- **Weight:** 350 pounds (C-7 model)
- **Warhead:** Blast/Fragmentation
- **Fuze:** Target Detection Device
- **Propulsion:** Boost/Sustain, Reduced Smoke
- **Launcher:** LAU-127/128/129/142 Launchers
- **Speed:** Supersonic
- **Combat Range:** 20+ nautical miles

### Functions/Performance Parameters

- **Mission:** 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.
- **Performance Parameters:**
  - Joint project between Air Force and Navy
  - All Altitude Capability
  - All Weather Capability
  - All Aspect Capability
  - Platform Options: F-15, F-16, F-18, F/A-22
  - P3I Program
    - Enhanced Electronic Protection (EP) capabilities
    - Improved warhead, fuzing and guidance
    - Increased kinematics via new 5-in stretched rocket motor

# CBU-87 Combined Effects Munition (CEM)

## Acquisition Status

- **Program Status:**  
Sustainment/Upgrade
- **Current Inventory:**
  - CBU-87 - 99,401 units  
(From ACP, 23-29 Oct 04)
  - CBU-103 - 11,591 units  
(From ACP, 23-29 Oct 04)
- **Contractors:**
  - Aero General
  - Honeywell, Inc
  - Alliant Tech
- **Ongoing Upgrades:**
  - Upgrade to the CBU-103 Configuration with Wind Corrected Munitions Dispenser (WCMD) Tail Kits
  - WCMD-ER in development, which adds a wing kit and INS/GPS to baseline CBU-103



## Capabilities/Profile

- **Combat Range:** Direct Attack Munition (WCMD-ER will extend out to ~40 NM)
- **Warhead:** 202 BLU-97 Shaped Charge Anti-Personnel/Anti-Material Frag/Incendiary Bomblets
- **Dimensions:**
  - 92 in x 15.6 in diameter
- **Weight:** 949 Pounds

## Functions/Performance Parameters

- **Mission:** The weapon dispenses the bomblets over the target in a rectangular pattern.
- **Performance Parameters:**
  - Adverse Weather Capability
  - Upgrade to INS incorporated WCMD tail kits provides increased accuracy for medium-high altitude deliveries
  - Addition of WCMD-ER kits provides standoff to ~40 NM, as well as GPS/INS delivery accuracy

# CBU-89 GATOR

## Acquisition Status

- **Program Status:**  
Sustainment/Upgrade
- **Current Inventory:**
  - CBU-89 - 10,124 units  
(From ACP, 23-29 Oct 04)
  - CBU-104 - 100 units  
(From ACP, 23-29 Oct 04)
- **Contractors:**
  - Honeywell
  - Aerojet
  - Olan
  - Alliant
- **Ongoing Upgrades:** Upgrade to the CBU-104 Configuration with Wind Corrected Munitions Dispenser (WCMD) Tail Kits



## Capabilities/Profile

- **Combat Range:** Direct Attack Munition
- **Warhead:**
  - 72 BLU-91 Anti-Tank Mines
  - 22 BLU-92 Anti-Personnel Mines
- **Dimensions:**
  - 92 in x 15.6 in diameter
- **Weight:** 705 Pounds

## Functions/Performance Parameters

- **Mission:** CBU-89 (mixed system) disperses 94 mines (72 mines are anti-tank and 22 are anti-personnel). The weapon dispenses the mines over the target in a rectangular pattern. The mines have three selectable self-destruct times.
- **Performance Parameters:**
  - Adverse Weather Capability
  - Upgrade to INS incorporated WCMD tail kits provided increased accuracy for medium-high altitude deliveries

# CBU-97 Sensor Fused Weapon (SFW)

## Acquisition Status

- **Program Status:** Full rate production
- **Production:** Procurement ends FY12
- **Current Inventory (CBU-105):** 3,230
- **Projected Inventory: (CBU-105 and CBU-115):** 6,500
- **Contractors:** Textron Systems Corporation
- **Future Upgrades:** None at this time. Currently being fitted with INS guided WCMD tail kit (CBU-105); SFW will be fitted with WCMD-ER (CBU-115) tail kit beginning in FY07.



## Capabilities/Profile

- **Combat Range:** N/A - Direct Attack Munition
- **Dimensions:**
  - 7.7 Feet (Length)
  - 1.3 Feet (Width)
  - 1.3 Feet (Height)
- **Weight:** 920 Pounds

## Functions/Performance Parameters

- **Mission:** Provides operational forces with the capability to achieve multiple kills per pass against moving and stationary land combat vehicles. Tanks, Armored Personnel Carriers, and propelled targets are primary targets. It provides direct attack capability and interdiction against command and control centers.

### • Performance Parameters:

	Threshold/ Baseline	Actual	Variance
Kills	Multiple/Pass	Exceeding	+70%
Targets	Armor/Support Vehicles	4	0
Del Altitude	200-3000* ft	4	0
Aircraft	F-16, F-15E, A-10, B-1, B-2, B-52	4	0
Schedule (RAA) (Required Asset Availability)	MET	MET	0

*\*Requirement calls for 200-3000 ft. With WCMD can be employed at altitudes up to 40,000 ft*

# F-16 HARM Targeting System (HTS) R6 and F-16 HARM Targeting System (HTS) R7 (Smart Targeting and Identification via Network Geolocation (STING))

## Acquisition Status

- **Program Status:** F-16 HTS is operational at 6 locations (9 active duty and 1 guard squadrons); all are currently equipped with HTS Release 6 hardware and software.
- **Current Inventory:** 207 pods (includes 11 non-operational test units)
- **Projected Inventory:** 260 (plus 32 for operational testing and attrition pods programmed in out-years)
- **Contractor:** Raytheon Missile Systems Note: 256 pods are funded (207 inventory + 49 in FY06 PBR)
- **Future Upgrades:**
  - STING- HTS Release 7 – Modification adds Precision Geolocation Targeting in FY06 / 07
  - Dual Carriage of HTS or STING with Advanced Targeting Pods in FY07
- **Purchase Requirements:** Currently no contract for pod purchase
- **Future Pod and Modification Requirements:** 49 additional R7 pods are programmed for AEF. Procurement currently planned to start in FY06 (includes procurement of pods to equip a number of F-16 Block 40 aircraft to perform Suppression/Destruction of Enemy Air Defenses (SEAD/DEAD) mission). Plan to award retrofit modification contract in FY05 to purchase kits to modify



85 HTS R6 pods to STING-HTS R7. In FY06, contracts are planned for install of the 85 kits purchased in FY05 and to buy 122 kits to complete the current inventory of HTS R6 pods. In FY07, installs of the remaining 122 kits are planned.

## Capabilities/Profile

- **Combat Range:** N/A - F-16 Subsystem mounted on engine inlet
- **Dimensions:**
  - 56 Inches (Length)
  - 25 Inches (Circumference)
- **Weight:** R6 - 90 Pounds (R7 - 114 lbs max)

## Functions/Performance Parameters

- **Mission:** Currently provides the F-16CJ Block 50/52 aircraft with the capability for real-time targeting of enemy air defense system threats and enables employment of the AGM-88 High-Speed Anti-Radiation Missile (HARM) in the “range known” mode - the missile’s most lethal mode. HTS equipped F-16s are primary aircraft that conduct SEAD mission - - used in front line activity during engagements in Iraq and Kosovo.
- **Performance Parameters:** Detects and provides targeting information on enemy air defense radar outside the lethal range of their associated Surface-to-Air Missile (SAM). HTS targeting information increases HARM lethal range by 25% and increases probability of hitting the target radar. STING-HTS R7 will provide precision targeting needed for accurate employment of GPS-aided munitions as well as HARM with increased situational awareness and detection range.

# GBU-31/32/38 Joint Direct Attack Munition (JDAM)

## Acquisition Status

- **Program Status:** Production of JDAM kits for 500 lb. MK-82/ BLU-111, 1000 lb. MK-83/BLU-110, and 2000 lb. MK-84/BLU-109 bomb bodies
- **Production:** Last Delivery FY 11
- **Current Inventory:** Over 70,000 tail kits
- **Operational on:** B-1B, B-2 A, B-52H, F-14B/D, F-16C/D, F/A-18 C/D /E/F
- **Projected Procurement:** 223,186 total in FY05 PB (150,076 AF; 73,110 USN)
- **Contractors:**
  - Boeing (JDAM Prime)
  - Textron (Tail Actuator System)
  - Honeywell (Inertial Measurement Unit)
  - Rockwell-Collins (GPS Receiver)
  - Lockheed Martin (Mission Computer)
- **Future Upgrades:** JDAM GPS Selective Availability Anti-Spoofing Module (SAASM) and a JDAM anti-jam GPS antenna will be included beginning with FY06 deliveries.



## Capabilities/Profile

- **Combat Range:** <15 Nautical Miles
- **Warheads:**
  - Blast/Frag: MK-82/BLU-111, MK-83/BLU-110, MK-84
  - Penetrator: BLU-109
- **Dimensions:**
  - MK-82/ BLU-111: 8 Feet (length)
  - MK-83/BLU-110: 10 Feet (length)
  - MK-84: 12.7 Feet (length)
  - BLU-109: 12.4 Feet (length)
- **Weight (USAF/USN):**
  - MK-82/BLU-111: 552/558 Pounds
  - Mk-83/BLU-110: 1014/1029 Pounds
  - Mk-84: 2039/2059 Pounds
  - BLU-109: 2118/2138 Pounds

## Functions/Performance Parameters

- **Mission:** JDAM upgrade the existing inventory of general purpose bombs by integrating them with a GPS/INS guidance kit to provide the warfighter with accurate weapon delivery in adverse weather from medium/high altitudes. JDAM became the warfighters' "Weapon of Choice" in the Kosovo, Afghanistan and Iraq air-to-ground campaigns.
- **Required Key Performance Parameters:**
  - Accurate (<13 meter Circular Error Probable (CEP) with GPS-aided INS)
  - Adverse Weather Capability
  - Warhead Compatibility (MK-82, MK-83, MK-84, BLU-109, BLU-110, BLU-111)
  - USAF and Navy Fighter and Bomber Compatibility
  - In-Flight Captive Carriage Re-targeting
  - Aircraft Carrier Operability
  - Interoperability

# GBU-39/B Small Diameter Bomb (SDB)

## Acquisition Status

- **Program Status:** System Development and Demonstration (SDD)
- **Production:** LRIP FY05; Last delivery FY20
- **Current Inventory:** 0
  - F-15E Required Assets Available (RAA); 4QFY06 (158 SDBs; 27 carriages)
- **Projected Inventory:** 24,000
- **Contractor:**
  - McDonnell Douglas (Boeing), St. Louis
- **Future Upgrades:** Increment II to provide initial capability against moving targets



## Capabilities/Profile

- **Combat Range:**
  - $\geq 40$  Nautical Miles down-range from 0.8 mach at 40K Mean Sea Level (MSL)
  - $\geq 35$  Nautical Miles cross-range from 0.8 mach at 40K Mean Sea Level (MSL)
- **Warheads:**
  - Penetration/Blast Frag
- **Dimensions:**
  - Length 71 in
  - Width 7.5 in
  - Height 7.8 in
- **Weight:** 250 lb Class

## Functions/Performance Parameters

- **Mission:** SDB will provide fighter and bomber aircraft with a tactically significant standoff attack capability from outside of point defenses against fixed targets, while increasing loadout and minimizing collateral damage.
- **Performance Parameters:**
  - Increase Weapon Loadout
  - Interoperability (interoperable with established projected C4ISR architectures)
  - Increased Weapons Accuracy
  - Compatibility with current and future Air Force platforms

# Joint Air-to-Surface Standoff Missile (JASSM)

## Acquisition Status

- **Program Status:**
  - LRIP: Dec 01
  - B-52 RAA: Sep 03
  - B-2 RAA: Jan 04
  - IOT&E Completed Dec 03
  - MS III: May 04
- **Production:** Last delivery in FY17
- **Current Inventory:** Approximately 150
- **Projected Inventory:** 4,900
- **Contractors:**
  - Lockheed Martin (Prime)
  - Teledyne Ryan, Honeywell, Fiber Innovations, Williams International (ER engine), Klune (Sub-Contractors)
- **Future Upgrades:** JASSM Extended Range (JASSM-ER) - Congressional plus-up of \$10M for development beginning in FY03 – Production cut-in scheduled for FY07; Weapon Data Link (WDL) – funded with development effort to commence in FY06; currently leveraging off WDL Advanced Concept Technology Demonstration (ACTD)
- **Purchase Requirements:** 4,900 (2,400 baseline and 2,500 Extended Range)



## Capabilities/Profile

- **Combat Range:** Baseline JASSM greater than 200NM; Extended Range greater than 500NM
- **Dimensions:**
  - 14 Feet (Length)
  - 78 Inches (Circumference)
- **Weight:** 2,250 Pounds/2,450 Pounds (for ER)

## Functions/Performance Parameters

- **Mission:** Affordable, autonomous, long range, conventional, survivable, air-to-ground, precision-guided, standoff cruise missile; compatible with Air Force and Navy fighter and bomber aircraft; able to strike a variety of high value, heavily defended, fixed and buried or relocatable targets.

### • Performance Parameters:

	Threshold/ Baseline	Actual
Range Low High	Classified Classified	Classified Classified
Missile Mission Effectiveness	55 missiles	Classified
Carrier Operable	yes	yes
Affordability (\$FY95) (Ave Unit Proc Price)	\$700K	\$380K
Autonomous	yes	yes
Adverse weather capability	yes	yes
Warhead (Blast/Frag/Penetrator)	Unitary	yes (1000 lb class)

# Joint Helmet Mounted Cueing System (JHMCS)

## Acquisition Status

- **Program Status:** Joint Air Force/Navy Program in Production
  - Initial fielding in-progress
  - Units at Elmendorf, Lakenheath and Mountain Home
- **Production:** MS III approved Jan 04; FRP-1 contract awarded May 04
- **Procurement Objective:** 1,952 units
- **Contractor:** Boeing/VSI (Kaiser/Elbit primary sub-contractors)
- **Future Upgrades:** P3I options are currently being evaluated



## Capabilities/Profile

- Accurately cue and display sensors and weapons during flight from negative 3.0 to positive 9.0 Gs
- Display symbol showing directional cue when item is beyond system field of view
- Off-Boresight Cueing of 90 degrees in all directions
- Helmet Weight less than or equal to 4.3 pounds
- Helmet Center of Gravity less than or equal to 2.5 inches off center

## Functions/Performance Parameters

- **Mission:** The program is to design and develop a helmet mounted display system which will provide the aircrew member the capability to cue and verify cueing of high off-boresight sensors and weapons. Allows the US to regain the combat advantage of first look/first shoot in the air-to-air visual range arena.
- **Capabilities:**
  - Compatible with current ejection systems
  - Outstanding cueing/verification performance with the AIM-9X
  - Carriage Options: F-15C, F-16, and the Navy F/A-18C/D/E/F
  - Cueing Options: AIM-9M, Radar, FLIR, and various A/G weapons and sensors

# LGM-30G Minuteman III

## Acquisition Status

- **Program Status:** -Currently conducting system life extension programs designed to modernize the MMIII system and keep it operationally effective and supportable through 2020.
- Propulsion Replacement Program (PRP) corrects age related degradation in Stages I, II and III. Production phase continues through 2009.
- Guidance Replacement Program (GRP) replaces 1960's era electronics in the guidance system. Production phase continues through 2008.
- Propulsion System Rocket Engine (PSRE) corrects age-related degradation in the post-boost vehicle. Enters Full Rate Production (FRP) in FY06.
- Safety Enhanced Reentry Vehicle (SERV) adds capability to carry Mk21 reentry vehicles. Completes SDD phase and enters FRP in FY06.
- Rapid Execution and Combat Targeting (REACT) upgrades launch control equipment. Completes production efforts
- Global Positioning System Metric Tracking replaces aging range safety and tracking equipment on board the flight test missile. Completes -production phase in FY05
- ICBM Security Modernization program improves several aspects of the physical security of the MM III system to counter emerging and postulated threats. Continue SDD phase and



certain production efforts in FY06.

- ICBM Crypto modernizes the KI-22 system located in launch control/launch facilities. -Continues SDD in FY06.
- ICBM Demonstration/Validation invests in technology applications efforts to retain skills, reduce life cycle costs, improve safety and nuclear surety and assure continued ICBM viability. Projects focus on guidance, propulsion, reentry systems, planning, and ICBM asset reuse. Explores requirements and conducts pre-acquisition planning for future ICBM capabilities.
- Missiles currently deployed: 500 Minuteman III
- **Contractors:**
  - Prime: Northrop Grumman
  - Key Subcontractors:
    - Lockheed-Martin, Boeing, Alliant Techsystems, Raytheon, Honeywell, Aerojet

## Capabilities/Profile

- **Key MM III Performance Parameters:**
  - Combat Range: 6,000 miles plus

- Armament: 1 - 3 MK12/12A reentry vehicles (RVs)
- Propulsion: Three stage solid fuel, and a liquid fuel post boost vehicle (PBV); hot launch
- Dimensions:
  - 59.9 Feet (Length)
  - 5.5 Feet (Diameter)
- Weight: 79,432 Pounds
- Treaty Implications: START I sublimit - One Minuteman missile wing downloaded to single reentry vehicle (SRV)
- Deployed: Malmstrom AFB, MT; Minot AFB, ND; FE Warren AFB, WY

## Functions/Performance Parameters

- **Mission:** The MMIII is an inertially guided ballistic missile of intercontinental range. The missile can deliver up to 3 independently targetable reentry vehicles. MM III provides a highly survivable, quick-reacting component to the New Triad. When Peacekeeper deactivation is complete at the end of FY05, Minuteman will be the only land-based component of the US strategic nuclear arsenal.
- **Mission Parameters:**
  - Very high alert availability and reliability
  - Prompt response and delivery against a variety of potential targets
  - Accurate and global
  - Speed: Approx 15,000 mph at burnout

# LGM-118 Peacekeeper

## Acquisition Status

- **Program Status:** Fielded, weapon system deactivation began Oct. 02. All Peacekeeper missiles are schedule to be removed by the end of FY05



## Capabilities/Profile

- **Combat range:** 6,000 miles
- **Armament:** Up to 10 Mk21 reentry vehicles
- **Dimensions:**
  - 71 feet (Length)
  - 7.7 feet (Diameter)
- **Propulsion:** Four stages; first three stages are solid propellant; fourth stage post boost vehicle is liquid fuel; cold launch
- **Weight:** 195,000 pounds
- **Treaty Implications:** 9 Peacekeepers currently deployed
  - By the end of FY05 all Peacekeepers will be deactivated
- **Deployed:** FE Warren AFB, WY

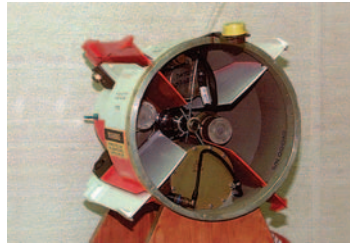
## Functions/Performance Parameters

- **Mission:** Strategic weapons system using an ICBM capable of delivering up to ten independently targetable re-entry vehicles with a very hard target kill capability
- **Performance Parameters:**
  - Speed: approximately 15,000 mph at burnout.

# Wind Corrected Munition Dispenser (WCMD)

## Acquisition Status

- **Program Status:**
  - WCMD: Full rate production
  - WCMD-ER: RDT&E (Production begins FY06)
- **Production:** WCMD ends FY05; WCMD-ER ends FY13
- **Current Inventory:** 24,000 WCMD tail kits delivered
- **Projected Inventory:** 31,500 total (WCMD: 24,000; WCMD-ER: 7,500)
- **Contractor:** Lockheed Martin
- **Future Upgrades:** WCMD-ER development began in FY03, and deliveries begin in FY07. WCMD-ER integrates a wing kit and GPS for longer range and better precision.



## Capabilities/Profile

- **Range:** N/A - Tail kit for Direct Attack Munitions
- **Dimensions:**
  - 1.42 Feet (Length)
  - 1.75 Feet (Width)
  - 1.75 Feet (Height)
- **Weight:** 100 Pounds

## Functions/Performance Parameters

- **Mission:** Provides accurate dispenser weapon capability when delivered from medium to high altitudes. WCMD is a tail kit for use on inventory cluster weapons (CEM, Gator, SFW). Combined Effects Munition (CEM) is an anti-armor/anti-personnel weapon. Gator delivers anti-tank and anti-personnel mines. Sensor Fuzed Weapon (SFW) is an anti-armor weapon. WCMD-ER development began in 2003 to add a wing kit and integrate GPS in the WCMD tail kit.
- **Performance Parameters:**
  - Adverse weather performance
  - Autonomy (release and leave)
  - Retargeting capability (prior to release)
  - No degradation of Tactical Munitions Dispenser envelope
  - Core/Alternate aircraft interface
  - Compatible with CBU-87, CBU-89, & CBU-97

	Threshold	Actual (est)	Variance
Accuracy	100 ft	37 ft	+63 ft

PERSONNEL



# Air Force Personnel Strategic Plan— Transforming Human Capital Management

## BACKGROUND

Air Force Council embraced Personnel Vision and Strategic Planning Construct

- Transform Total Force human capital management
- Ensure human capability development meets ever-changing threat to US

## DISCUSSION

*Vision* succinctly states role of manpower, personnel, and training professionals:

Air Force exercises core competency promoting mission effectiveness

- Accessing, developing, and sustaining in support of the vision
- Personnel Strategic Plan supports President's Management Agenda, DoD human resources strategic guidance, and directly links to Air Force core competencies
  - Effects-based strategy focused on capability requirements
  - Maximizing return on Airmen investment across Total Force
  - Effort moves from regulatory-based frame work to performance based
  - Measures of merit are successful mission outcomes

Six Strategic Goals anchor plan

- Performance measures intended to reveal progress and guide change as personnel transforms into performance-based provider of human combat capability
- Goals focus on mission effects:
  - Define: Implement a capabilities-based requirements system that meets surge requirements and optimizes force mix (Active duty, Air Reserve Component, civilian, and contractors) to produce a flexible and responsive force
  - Renew: Maintain a diverse, agile workforce that leverages synergy between active duty, air reserve and civilian components, and private industry to meet requirements and sustain capabilities

- Develop: Synchronize training, education, and experience to continuously create innovative, flexible, and capable Airmen to successfully employ air and space power
- Sustain: Sustain required force capabilities through focused investment in Airmen and their families
- Synchronize: Implement a robust strategic planning construct, understand Air Force Human Resource investment, and link programing and legislative development to the plan
- Deliver: Transform customer service by delivering leaner, more cost-effective, customer-focused Human Resource Service to support Air Expeditionary Force

## MAIN POINTS

- Incorporate personnel vision/strategic plan
  - Ensure agile human combat capability
  - Meet asymmetric threats in today's world environment
- Link to Air Force Core Competencies
  - Supports broader institutional guidance
  - Transformation from regulatory-based service provider to warfighter's provider of effects-based human combat capability
- Guide personnel community's efforts to achieve vision
  - Grounded in outcome-based performance measures

# Force Development

## BACKGROUND

Total Force Development (FD) is a 21st Century paradigm shift

- Deliberately plans for leader development
- Uses adaptive/deliberate experiences inside/outside traditional career paths
- Prepares leaders to perform wider and more complex joint missions
- Defines required leadership skill combinations
- Facilitates education and training processes
- Produces right number of personnel at right time and with right skills to establish capabilities and effects-based force for the future
- Historically, USAF measured life cycle of its manpower, not the outputs the manpower produced or skills needed to produce them
- Under FD construct, USAF focused on outcomes needed in future leaders

## DISCUSSION

- Objectives:
  - 1) Deliberately connect all training and education to assignment experience, building that meet Air Force needs across career fields
  - 2) Connect individual goals to Air Force needs to achieve both
  - 3) Ensure USAF personnel-directed decision processes invest the right education, training, and experience in the right person at the right time to meet requirements
  - 4) Enhance leader's/member's understanding of roles in professional development
    - Use inputs for assignment; provide feedback to inform/shape expectations
- Three levels:
  - 1) Tactical: during early years of career, members gain knowledge and experience in primary skill, combined with deliberate education/training
  - 2) Operational: During mid-grades, members continue to widen experience and increase responsibility within related family of skills
  - 3) Strategic: Senior members develop full breadth of experience and leadership perspective at joint, inter-governmental, and international levels
- Individualized development plan critical communication tool capturing member's career development plan, including desired career path choices, assignment, and developmental education preferences
- Development plan routed through chain of command, to include senior rater (if required), for guidance and endorsement
- Development Teams
  - Recently created
  - Comprised of senior leaders from the functional communities
  - Carefully review each individualized development plan, along with commander's comments, and senior rater input
  - Target Air Force requirements
  - Place a developmental "vector" in the development plan--input for assignment team, and immediate feedback to member and commander
- Assignment teams match members to jobs using development team vectors
  - Active participation in deployments at tactical and operational levels critical to officer and enlisted development
  - Command experience (or equivalent) at both operational and strategic levels is fundamental to senior leadership development
  - Instructor experience at tactical and operational levels recognized as desired trait in our leaders and is actively encouraged
- Developmental Education
  - Expanded to include traditional professional military education, advanced academic degree programs, specialty schools, fellowships, education with industry, and internships
  - Development teams review USAF requirements in relation to individualized development plan and member's record to make developmental

education recommendations to the Developmental Education Designation Board (DEDB)

- DEDB designates the “right” school for the “right” member at the “right” time
- Intermediate Developmental Education and Senior Developmental Education prepare members for a developmental assignment
- Two-dimensional process facilitates transition--one responsibility level to next
- Developmental education programs assigned to best utilize member’s background, functional skills, and valuable time

## **MAIN POINTS**

- Force Development provides a competency based development process.
- Connects depth of expertise in individual’s primary career field with necessary education/training/experience to produce more capable and diversified leaders
- Success depends upon continued cultivation and institutional understanding of, and interest in Force Development, promoting an understanding of leadership competency requirements, and funding for associated development initiatives
- Success hinges on overcoming currently unknown potential budgetary concerns
- Active Duty Force Development plan well underway
- Goal for establishing an initial operating capability for rest of the total force is end of fiscal year 2005

# Force Shaping

## BACKGROUND

- Under-strength conditions of the late 1990s
- Poor recruiting and retention climate but increased recruiting effort with positive results.
- Fluctuating economy
- Stop-Loss program
- End-strength above congressional authorization by 22,000 (est.); initiatives to return to authorized end strength by end of FY 2005

## DISCUSSION

### Developed Force Shaping Program to reduce and reshape force

- Identified overage career fields by year of service and skill level
- Majority of officer and enlisted overages occur in 1 – 5 and 15 – 20+ year groups
- Phase I implemented on 4 Feb 04--2,545 voluntary separations
- Phase II implemented on 28 May 04--expanded Phase I parameters and introduced additional voluntary measures
  - Targeted yield of approximately 7,500
  - Initiatives included:
    - Reduced sustainment levels to 95% in many career fields as of 1 Oct 04
    - 34% eligibility increase for enlisted (~21,300 to ~28,500)
    - 54% eligibility increase for officers (~5,000 to ~7,700)
    - Facilitated transfer to ARC through PALACE CHASE program
    - Waived officer educational service commitments for USAFA, AFROTC, and tuition assistance
    - Permitted Lt Cols and Cols to retire with 2 vs. 3 years time in grade
    - Involuntarily retrained NCOs
    - Implemented Career Job Reservations (CJR) for first-term enlisted to aid in rebalancing the skills required across the force

- Rolled back date of separation for enlisted members with specified reenlistment codes
- Directed commanders to review personnel with quality force factors and make retention recommendations for those declining assignments or in-residence professional military education
- Commissioned/transferred AFROTC graduates to the Army (voluntary)
- Closed inter-service transfers of personnel from other Services
- Encouraged voluntary transfer of personnel to the Army (Blue-to-Green Program) to assist in shoring up their manning shortage
- Garnered SECAF approval to not recoup enlisted bonuses
- Facilitated employment with civil service
- FY 2004: Accessed enlisted into needed specialties only (cut of ~3,000)
- Fiscal Year 2005: Conducted 1-year cut of 11,000 enlisted accessions from over-manned AFSCs (approximately one-third of annual accessions)
- Cut OTS production by ~350
- Managed accessions to achieve the right skill mix
- Kept AETC resources in place; resume normal accession levels in FY06

## MAIN POINTS

- Nov 04, force shaping reductions equal 13,205 personnel (55% of goal)
- On schedule to meet mandated congressional end strength by end of FY 2005
- Use Force Shaping initiatives into FY 2006 to balance officer and enlisted numbers
  - Developed variety of Force Shaping initiatives to reach authorized end strength by end of fiscal year 2005

# Manpower Force Structure Dynamics, Active Duty And Air Reserve Components

## BACKGROUND

- Lessons learned from September 11 and Global War on Terrorism

## DISCUSSION

Continually review military skills mix to apply end-strength against greatest needs

- To adjust skills mix, consider multitude of tools/factors, including AEF
  - Transition to a new, post OIF steady-state
  - Re-baselining Total Force deployment requirements
  - Deployment requirements form bedrock of military skill mix.
- Developed stress assessments to measure relative stress across our specialties
  - Indicate where to realign military end strength
- Implemented a work-hours reporting system by specialty
  - Gauge stress on the force
  - Enable senior leadership to identify heavily taxed career fields
  - Adjust skills balance as necessary to provide needed stress relief.
- Developing AF-wide Strategic Sourcing Campaign Plan
  - Facilitate future competitive sourcing based on new legislation and changes to Office of Management and Budget Circular A-76
  - Plan takes deployment needs into account to generate combat capabilities
  - Pursuing technological solutions versus simply adding manpower
  - Minimize dependence upon Air Reserve Component (ARC) specialties
    - Minimize ARC specialties needed in first 15 days of conflict
    - Reduce stress on ARC forces
- Commitment level will not decrease any time soon
- Find better ways to manage Total Force in dealing with higher operations tempo
- SecDef directed services to better balance dependency on ARC

- Established general guidance to:
  - 1) Structure the force to minimize the need to involuntarily mobilize reservists using one year out of every six as a metric
  - 2) Reduce dependency on involuntary activation of reservists during the first 15 days of a rapid response operation
  - 3) Develop innovative management practices that encourage volunteerism
- ARC a vital/integral to USAF warfighting capability
  - ARC makes up 15-25 percent of AEF (not counting mobilized forces)
  - Post 9-11, mobilized over 62,000 ARC personnel in more than 100 units, as well as thousands of individual mobilization augments
  - Normal year, ARC volunteers provide equivalent of 10,000 extra active component Airmen
  - ARC forces come with a wealth of experience: ARC members have six more years experience than active counterparts
  - Experience especially highlighted during deployments
- ARC best characterized as full-time forces manned by part-time people
- Reduce reliance on involuntary mobilization without reducing reliance on rapid-deployment of trained, ready and capable ARC forces early in a conflict
- USAF successful in sourcing, deploying, and tailoring forces to meet theater requirements without full-scale mobilization
- One-tier readiness plan, components global-deployment ready within 72 hours
- Rotations construct provides long-term stability and predictability
  - Crucial in maintaining readiness posture
  - Provides families comfort--reduces stress of unknown deployment factors
- Prefer to fill AEF rotations with volunteers
  - Working to increase ARC volunteerism

- Addressing challenges/barriers--equity of benefits, tour-length flexibility, civilian employer and Combatant Commander concerns
- Continue to explore variety of innovative organizational initiatives
  - Blended wings, active associate units, reserve associate units, virtual operations, reach back, expanded roles in overseas presence, etc.
- Adjusted technical training schedules--train inflows into most stressed careers
- Increase ARC full-time billets to reduce dependency on involuntary mobilization
- USAF moved over 4,700 positions from less stressed career fields most stressed
- Hiring additional contractors
- Program Change Proposals submitted in FY 2005 President's Budget submission
  - Ease stressed career fields--conversions, reach back, additional personnel
  - Transferring capability from ARC to active duty; from active duty to ARC
  - Examples include initiatives within Air and Space Operations Centers, Predator, Global Hawk, Space Operations, HC-130, WC-130, C-5, C-17, KC-135, Combat Search and Rescue, and Security Forces units
- Aim to use initiatives to reduce stress on Total Force
- Develop tools necessary to manage higher tempo of steady state operations

## **MAIN POINTS**

- USAF has right amount of forces.
- Must adjust skill sets to meet mission requirements now and in the future Solution centers upon adjusting skill mix through a multi-prong approach to meet force mix and size challenges impacting Total Force
- Operations tempo and stress on force dramatically increased

# National Security Personnel System (NSPS)

## BACKGROUND

- Allows DoD to manage strategically its civilian workforce based on a total force perspective. Enables DoD to hire more quickly, offer competitive salaries and compensate and reward our employees based on their performance and contribution to our mission.
- FY 2004 National Defense Authorization Act authorized National Security Personnel System (NSPS)
- Provides DoD authority to considered most significant change since 1978 Civil Service Reform Act

## DISCUSSION

- NSPS Spiral 1 implementation currently scheduled for July 2005
- SecDef and Director, OPM, will issue NSPS regulations jointly
- Respond immediately to changing world conditions--fight global terrorism
- Attract, develop, compensate, and retain high performing workforce
- Provide DoD agility in hiring, firing, and promoting.
- Continues to tie pay to performance
- Authority to establish new system for appraising performance
- Flexibility in classifying positions
- Ease in administering pay and allowances
- Will continue to be a merit-based system--fair treatment, equal pay for equal work, veterans' preferences and whistleblowers protection
- Employees and supervisors involvement key to developing the new system
- Ensures collaboration with unions in planning, development, and implementation
- Efforts designed to provide fair, credible performance appraisal system
  - Training and retraining opportunities for employees and supervisors

- Process for ongoing feedback/dialogue between employees/supervisors
- Implementation broken down in phases, or "spirals".

## MAIN POINTS

- Provides DoD with a modern, flexible and agile human resources system, more responsible to the national security environment, while preserving employee protections and benefits.
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# Personnel Services Delivery (PSD) Transformation

## BACKGROUND

- Placed emphasis on need for personnel services delivery model
  - Reflects value placed in people and Total Force production
  - Enhances Expeditionary Air Force (EAF) capability
- Dramatically modernized personnel support/ services delivery

## DISCUSSION

- Leverages technology-enhanced service delivery
- Shifts role from transaction-centric to strategically-oriented “advisory” focus
- Provide personnel services through new, tiered Service Delivery Model
  - Self-service – providing Airmen with Web-based capabilities to inquire, obtain, and conduct most routine personnel transactions online, 24 hours/day, 7 days/week
  - Contact Center – (24-hour 1-800 number: e-mail, fax, posted mail); provides personal contact for complex issues, transaction problems, and expertise in policy interpretation
  - Face-to-face – advisors/counselors available to provide face-to-face service where needed
- Reengineering personnel processes to streamline steps
- Restructure personnel service organizations and duties/developmental paths
- Programmed resulting manpower savings from new service models (300 positions per year, FY06-FY10) to fund transformation itself
- Enhances ability to acquire, train, educate, and deliver Airmen
- Possess needed skills, knowledge and experience to accomplish missions

## MAIN POINTS

- Reengineer personnel/manpower processes/ organizations
- Deliver higher quality personnel services with greater access, speed, accuracy, reliability, and efficiency

# Recruiting

## BACKGROUND

- Recruiting Service has met its goal in twenty of the past twenty- years
  - Concerns surrounding increase for FY 2006 enlisted accessions
  - FY 2005 NDAA resulted in a \$23M marketing cut
  - Potential for additional budget cuts, including losing more marketing and bonuses
  - Face an additional \$45M reduction--if incurred, restricts ability to reach market
  - Must hold marketing campaigns steady to maintain identity
  - Future manpower requirement uncertainty challenges recruiters and funding

- Greatest recruiting competition comes from companies offering numerous financial incentives as well as from sister services
- General public with less military experience increases challenge

## MAIN POINTS

- Maintain a continuous manpower flow into the Air Force to ensure end strength goals are met.

## DISCUSSION

- World events and end-strength issues cause recruiting goals to fluctuate.
  - 2004 and 2005 reduced recruiting goals as part of Force Shaping effort
  - Challenge is to attract right people, with right skills, at right time
  - Recruiting standards remain high
  - Accessions needed to replace normal retirements and separations
  - When force shaping goals are met recruiters begin to work on re-established normal annual recruiting goals in FY 2006
  - Since 1999, USAF implemented several initiatives:
    - Increased Recruiting Service's Advertising budget from about \$17M in fiscal year 1998 to approximately \$57M in fiscal year 2005
    - Increased recruiter authorizations from 1,209 in fiscal year 1999 to 1,610 in FY 2004 (will drop to 1,506 in FY 2005 and 1,450 in FY 2006)
    - Implemented new recruiter selection process

# Retention

## BACKGROUND

- Reenlistment: Seventy-seven percent of enlisted personnel are eligible to reenlist between FY 05-07

Use selective reenlistment bonus for special interest specialties, along with the Career Job Reservation program, while depending upon commanders to provide career advice and help shape the future force

- Factors critical to meeting retention goals
  - Intangible: leadership, job satisfaction, prestige, challenge, responsibility, esprit de corps and patriotism
  - Tangible: Pay/benefits, retirement program, TEMPO, assignment system, medical/dental care, housing, promotion opportunity
- Closely monitor Low Density-High Demand career fields
- Effectively target specialties where Selective Reenlistment Bonuses favorably influence retention indicators, especially chronically critical areas
- Rated officers: expect air battle manager shortfalls to continue through FY 2009
- Pilot and navigator shortfalls also projected in specific skill and experience areas
- Shortfalls in Non-rated Developmental Engineers, Scientists, Acquisition Program Managers, Communication/ Information Management specialists, and Civil Engineers likely to continue

## DISCUSSION

- Utilizing programs to help shore up these specialties
  - Example: Voluntary Rated Recall programs returned 570 pilots, 123 electronic warfare officers and navigators, and 39 air battle managers to active duty during fiscal years 2002, 2003, and 2004
  - Senior navigators helped offset unfilled rated staff assignments

- FY 2004 navigator aviator continuation pay targeted to low production year groups to preserve navigator inventories through FY 2010
- Air Battle Managers remain one of the most stressed officer career fields
- Increased pilot training Active Duty Service Commitment to 10 years (8 years prior to 1 Oct 99)
- Increased annual pilot production to steady state of nearly 1,100
- Offered Aviator Continuation Pay to select groups of navigators and Air Battle Managers in FYs 2003 and 2004
- Offer targeted bonuses to pilots, navigators, and air battle managers who completed active duty service commitments for initial training
- Offered (FY 2003) Developmental Engineers, Scientists, Acquisition Program Managers, Communication/Information Management, and Civil Engineers a Critical Skill Retention Bonus with good results
- Completed developmental engineer re-recruiting in July 2002
- Completed Air Battle Manager re-recruiting in June 2004
- Re-recruiting efforts proved successful in shoring up these career fields
- Currently re-recruiting pilots, with target completion in April 2005
- Air Traffic Controllers, Navigators, Flight Engineers, Para rescue, and Special Tactics/Rescue officers will follow pilot effort

## MAIN POINTS

- Retain critical skills and manpower levels to ensure performance of Air Force missions in the current high tempo environment in CONUS and abroad.

# Recruiting & Retention- Air Force Reserve

## BACKGROUND

The recruiting and retention outlook during FY04 appears relatively healthy. While there has been a concern of a potential dip in retention as a result of the release of the Air Force STOP/LOSS program, the Air Force Reserve (USAFR) has not yet experienced losses out of line with expectations. This is particularly good news when considered in tandem with potential recruiting and retention problems anticipated from the high PERSTEMPO (personnel tempo) to meet demanding OPSTEMPO (operations tempo) resulting from Operations NOBLE EAGLE, ENDURING FREEDOM and IRAQI FREEDOM. However, the required six-month separation deferment to meet mobilization and deployment requirements means that the actual impacts of STOP/LOSS and high ops tempo won't be fully realized and experienced until well into FY04.

## DISCUSSION

- Recruiting goal requirements for FY04 are 9,600 recruits while future year requirements escalate to 10,000+ annually through FY07. Air Force Reserve end-strength is anticipated to remain relatively steady in the 75,000 range. Air Force Reserve Recruiting Service has successfully recruited over 100 percent of its goal for three consecutive years, but expects to face considerable challenges in the coming years. Retention remains steady above 85 percent for enlisted and 90 percent for officers, but these rates will be influenced by the high PERSTEMPO to prosecute the Global War On Terrorism (GWOT) and the number of personnel who are eligible for retirement with 20 or more years of service. These factors regarding retention combined with a reduced prior active service eligibility pool will be critical areas in determining our recruiting needs to meet end strength requirements. The recruiting goal for FY03 was 9,067, which is 1,467 higher than the FY02 goal of 7,600,

but it is still well below historical requirements. Decreases in annual goals for FYs 02 & 03 are largely due to the effect of STOP/LOSS, which reduced the usual programmed separations from the active duty Air Force that has been the primary source of recruits. The FY04 goal reflects increased recruiting requirements to replace those members with deferred departure due to STOP/LOSS.

- Recruiting for the Reserve is vastly different than recruiting for the Active Duty (AD). Besides the obvious difference of recruiting part-time instead of full-time members, the AD recruits 95+% non-prior service while Air Force Reserve Command (AFRC) recruits nearly 70 percent prior service. With this in mind, the high Ops/Pers tempo resulting from the Global War On Terrorism significantly impacts our prior service applicant pool. Many AD separatees identify the impact of this high OPSTEMPO as a primary reason for leaving military service. This results in a hesitancy to join the USAFR for fear of activation and finding themselves once again, facing deployment and family separation. As a result, AFRC in-service recruiting accessions directly from ADAF-eligible separatees have dropped drastically. There were approximately 1,600 accessions from AD with no break in service in FY03--a 50% drop from historical numbers.

- The reduction of AD separatees, coupled with their increased reticence to continue military service in the AFRC, forces the need to increase accessions among non-prior service recruits. This places the AFRC recruiters in competition with AD recruiters for the same candidates. The cost of recruiting non-prior service candidates is higher, as well as the costs associated to train them to be fully qualified: Basic Military Training and Technical Training School, costs not associated with prior service accessions.

- Readiness is always impacted by the ability to attract quality recruits and to specifically recruit them into hard-to-fill career fields. The

AFRC experiences similar challenges as the AD in terms of manning these career fields. If an AFSC is hard-to-fill for AD, it is often more difficult for the Reserve since we recruit such a large number of our accessions from prior service applicants. In addition, the AFRC must meet the added challenge of “location-specific” manning requirements. AD recruiting is a pipeline that fills vacancies worldwide, and they have a pool of full-time assets subject to their assignment system. The AFRC primarily recruits to fill positions within a 100-mile radius of AFRC wings for specific AFSCs and grades.

## **MAIN POINTS**

- A potential short-term easing of recruiting requirements may result from a Force Shaping initiative being considered by the active duty Air Force. The Secretary of Defense has directed the AD Air Force to meet Congressionally set endstrength requirements by the end of FY05. The AD Air Force expects the PALACE CHASE component transfer program to provide the greatest relief against AD end strength over this period. PALACE CHASE provides an option that allows AD military members to complete their AD service commitment in the Reserve and to continue accruing years of service for retirement. This Force Shaping program is expected to be launched in the AD component in FY04 and may yield a significant temporary pool of recruits for the AFRC. Just as this will allow the AD to meet end strength, the shift of these valuable manpower assets into the AFRC assures the Air Force maintains the expertise of these members who would otherwise separate for the foreseeable future.

# Recruiting and Retention - Air National Guard



## BACKGROUND

● After the events of 11 September 2001 and the resultant implementation of Stop Loss by the Air Force, the Air National Guard (ANG) saw its assigned strength steadily increase throughout FY02 to where it eventually exceeded

our Programmed End Strength by more than 3%.

● Primarily, two factors came into play with regard to the surge in our assigned end strength

● Implementation of Stop/Loss – Attrition Rate was extremely low throughout FY01 due to the involuntary retention of Air Guard members at that time

● During FY01, the economy was becoming very unpredictable with the unemployment rate on the rise – as a result, the general recruiting and retention environment for the ANG was improving even before the terrorists' attacks of 11 September 2001. Consequently, the ANG finished FY02 at 103.4% over its Programmed End Strength, exceeding our Recruiting Goal by 2% while attaining an exceptional Retention Rate (albeit an inflated rate due to Stop/Loss) of 92.7%.

## DISCUSSION

● As FY03 began, the ANG's Programmed End Strength was reduced by 1.7% or a decline of 1,800 positions (from 108,400 in FY02 to 106,600 in FY03). This situation combined with finishing FY02 at 103.4% of our assigned strength placed the ANG in the position of being 104.7% manned or, put another way, over 5,000 members were identified as excess to our requirements as of 1 October 2002.

● This being the case, the ANG's FY03 recruiting and retention strategy was dramatically adjusted in order to gradually drawdown the force to our established Programmed End Strength by the conclusion of the fiscal year. The new strategy required reducing our Recruiting Goal

by almost 40% (11,350 in FY02 to only 6,909 in FY03) and establishing our Retention Goal at 88% vice 90% for FY02.

● As of 30 September 2003, the ANG's FY03 overall strategy was very successful in significantly reducing new accessions into the Guard. As a comparison, there were only 9,641 new members gained through the end of September 2003 (FY03) – down by 16% in relationship to September 2002 (FY02) and down almost 17% against figures for September 2001 (FY01).

● Likewise, the ANG's strategy was equally successful in drawing down its on-board personnel in order to meet its Programmed End Strength requirements for FY03. Losses at the conclusion of September 2003 stood at 13,526 as compared with 7,981 losses in September 2002 (FY02) and 9,270 losses in September 2001 (FY01). Even though losses for FY03 were substantially higher than the two previous fiscal years, the primary reasons for the bulk of these separations were due to an increase in separations that would have normally occurred in FY02 but were delayed until FY03 due to the impact of Stop/Loss and an increase in retirements (40.5%). Throughout FY03, this sharp increase in attrition was in line with our overall strategy of reducing the ANG's assigned strength to its approved FY03 Programmed End Strength level.

● To bring the ANG's assigned strength into close proximity with its Programmed End Strength prior to the end of the fiscal year, ANG/DPR (Recruiting and Retention Division) announced its strength reduction plan to the field in September 2002 (FY02) as set forth in ANG/DPR's FY03 Recruiting and Retention Initiative message.

● This program limited our recruiters to fill only valid vacancies at the unit level. Exceptions were made for over 30 "stressed" AFSCs, allowing recruiters to enlist up to 100% plus 1 of their unit's authorized UMD positions. As an exception, Security Forces (3POX1) was allowed to recruit up to 120% of their authorized strength.

As planned, these restrictions slowed the ANG's average FY03 enlistments per month to approximately 803 as opposed to 957 new enlistments per month in FY02 or 931 in FY01.

- At the conclusion of FY03, the ANG's assigned end strength surpassed 108,000 – over 1,500 members above our current authorization. Additionally, the ANG exceeded its recruiting goal of 6909 by almost 40% or by over 2,700 new recruits. Further, as in past years, the ANG's Retention Rate remains the highest of all reserve components, ending FY03 at 87.9%.

## **MAIN POINTS**

- The bottom line, force activations as a result of our Global War On Terrorism (GWOT) have had little impact on the ANG's ability to attract and retain service members. For FY02 and FY03, the ANG not only exceeded their Recruiting Goal, but also surpassed our congressionally programmed end strength. Further, retention of current members remains consistent with past trends.

- The current recruiting and retention environment for the ANG remains very favorable with no adverse conditions readily apparent over the horizon. At this point in time, the ANG is able to effectively influence the overall assigned strength through the judicious use of enlistment and retention policies.

# Training

## BACKGROUND

- USAF established Learning Resource Centers at seven deployed locations
  - Provide education testing, counseling, and tuition assistance
  - Members may pursue voluntary education courses at deployed sites
  - 102,000 students enrolled in career development courses during FY 2004
- Training multipliers provide training anytime/anywhere: various delivery methods -- CD-ROM, paper-based, web-based and satellite. Over 47,000 students enroll annually in professional military education via advanced distributed learning
- Finalized migration toward web-based testing-- 400-plus students enrolled
- Commanders can train forces with realistic mix of capabilities from the strategic level (joint battle staffs) to the tactical level (individual sorties)
- Through simulation, assets are incorporated into a live exercise or rehearsal
  - Example: Joint Surveillance and Target Attack Radar System (JSTARS) simulator in Georgia, might be “connected” to Red Flag strike package in Nevada making it a seamless part of the live-fly operation
  - Enables visualization to practice missions in a “virtual” battlespace
- Enterprise Learning Architecture integrates and documents linkages between training development, delivery, and management processes and systems
- Training is key to sustaining and preserving investment
  - Expectation of valuable skill training inspires people to join
  - Developing skills to succeed in their job makes them want to stay

- 20% (7,500) of FY 2004 recruits cited skills training as primary reason for joining
- 43% of respondents rated training as very strong or strong influence to stay
- 1st-term airmen ranked training as number 12/42 factors influencing them to stay

## MAIN POINTS

- Exploiting high-tech learning systems to train personnel to maintain in sustained combat readiness and effective combat operations

# Quality Of Life Program

## BACKGROUND

- Quality of Life (QOL): system of formal and informal networks providing superior support/services to Total Force members/families to achieve its mission (whose mission? Unclear)
- Congressional support is critical--current system will continue to provide a considerable portion of personnel and pay management transactions even after the Defense Integrated Human Resources Management System (DIHRMS) is fielded

## DISCUSSION

- QOL based on level of satisfaction in eight areas: compensation and benefits, workplace environment, operations and personnel tempo, health care, housing, community and family programs and educational programs
- Most reported work place environment conducive to mission accomplishment
  - Civilians identified work place environment as number two priority
  - 82% of officers and 80% of enlisted reported environment supports mission accomplishment
  - 14 % of officers and 12% of enlisted report environment was not conducive to mission accomplishment
- Compensation and Benefits
  - Dramatic increases in number who feel total compensation is fair
  - Reflective of outstanding work Congress has done to boost compensation
  - Also includes recent changes in retirement system--resulted in dramatic decline in number who believed retirement system was unfair
- Nearly 40% of recent enlisted accessions report pay problems under new Personnel Data System
- Continue to address pay issues as they arise and develop system solutions to prevent reoccurrence
- Despite being over endstrength, 50 percent of respondents perceive manpower shortfall
- Lack of manpower was identified overall as the number 1 quality of life issue
- Continue shaping/balancing force to reduce stress on undermanned specialties
- USAF supports multiple operations, and most military personnel (85 percent of officers, 61 percent of enlisted, and 39 percent of civilians) report they work more than a 40-hour work-week
  - Senior ranking personnel report working longer hours than lower ranks
  - Pilots, on average, report working more hours/week than other officers
  - Ironically, average work week dropped 2.6 hours from 2000 to 2002
  - Bottom line: in spite of large differences in hours worked across career fields, there is no notable difference in career intent by specialty
- Pilots identified operations tempo as their number 1 quality of life issue
  - Company grade pilots averaged about 90 temporary duty days per year
  - Pilots who deployed at least 3 times since 1997, and who served TDY over 121 days in past 12 months, indicated slightly lower career intent
- Consistent with previous findings, more military personnel are satisfied with their own personal health care than are satisfied with the care of their family receives
- While satisfaction levels are up slightly concerning medical claims process, less than half report satisfaction with claims processing
- Civilians appear satisfied with number of choices in health plans—50% say their health care benefits are sufficient
- Housing: in 2002, only 36 percent of all military personnel lived on-base
  - About 50% of single enlisted dorm residents are dissatisfied with quarters, i.e. room size and lack of storage

- Continue improving with Congressional funding for dormitory renovation under 1 plus 1 concept--key component for success
- For those living on the economy, cost is the number one concern
- Three in five married officers who live in non-military housing spend more than \$300.00/month in excess of basic allowance for housing (BAH) for housing, utilities and insurance
- Since FY 2001, DoD focused upon eliminating out of pocket expense for housing by end of FY 2005
- Congress support instrumental in chipping away at this issue--look forward to continued Congressional support in this area
- Air Force Chief of Staff Quality of Life Survey (conducted 29 August-15 October 2002) validated current perspectives on Air Force priorities.
  - Overall response rate was 45 percent, highest in past five survey administrations (Participation: officers 51%, enlisted 43%, and civilian 51%)
  - Survey data used to establish working priorities, develop and/or update policies, build justification for new legislative initiatives and budget plans, and establish new road maps to improve overall QOL

## **MAIN POINTS**

- Enhance workplace effectiveness and increase the quality of life for our members and their families.

AIR FORCE MEDICAL SERVICES



# Deployment Health Surveillance (DHS)



## BACKGROUND

- Preventive Health Assessments (PHA): Each airman receives an annual review of clinical preventive services and individual medical readiness (IMR) requirements. PHAs are conducted globally in the AFMS and recorded in an AFMS-wide database; therefore, the health of each airman can be tracked throughout his service and in any location. Reserve Component PHAs are also tracked at the Air Force and DoD level and include individual medical readiness parameters.
- Pre-deployment Medical Assessments: assessments are performed on airmen deploying for 30 or more days to overseas locations without a fixed medical facility. Serum samples are extrapolated from HIV samples drawn prior to deployment and forwarded to the serum repository.
- Deployment Health Monitoring: preventive medicine teams identify, assess, control and counter the full spectrum of existing health threats and hazards. These teams collect exposure data and conduct health risk assessments in order to prevent both short- and long-term health effects and optimize operations.
- Post-Deployment Medical Assessments: assessments conducted in-theatre prior to redeployment; abnormal findings are evaluated in-theater and referred to the Airman's home station. A new Quality Assurance program implemented in May 03 tracks pre- and post-deployment requirement compliance. This program includes the tracking of post-deployment serum samples and follow-up medical appointments.

- The AFMS created base "Force Health Management Elements" in November 2002; these Force Health Management Elements (FHME) serve as the installation's focal point for managing pre- and post-deployment medical requirements.
- The Air Force participates in the Defense Medical Surveillance System (DMSS) and the Deployment Health Center, two joint deployment health initiatives.

## MAIN POINTS

- Deployment Health Surveillance has received increased emphasis following the operations in Afghanistan and Iraq.
- Presidential Review Directive 5 mandated that the health of all troops be protected during deployments and that all Services implement a DHS program; Joint Staff Memo, Updated Deployment Health Surveillance and Readiness, dated 1 Feb 02, directs service implementation; the program has been implemented since November 1998.
- Under Secretary of Defense (Personnel and Readiness (USD(P&R))) memo, Enhanced Post-Deployment Health Assessments, 22 Apr 03 provided further guidance for all current and future deployments.
- In 22 May 03, HQ USAF/SG issued guidance for the new requirements and for the pre-, during and post-deployment health surveillance requirements mandated in DoD instructions, Joint Chief of Staff memoranda and public law.

# Expeditionary Medical Operations



## BACKGROUND

- Air Force expeditionary medical operations have two main components: ground units called EMEDS (Expeditionary Medical System) teams to provide preventative, primary, surgical and critical care in the field; and aeromedical evacuation (AE) units to provide timely and in-flight care to patients being evacuated from the theater.

- EMEDS: Highly portable field clinics/hospitals. Composed of incremental manpower teams and lightweight modular structures that can be flown into the theater and quickly assembled.

- EMEDS Basic, the first increment of 25 medics, cares for 500-2000 in the field; additional manpower and equipment can be added until unit is capable of 25-bed inpatient capabilities, includes two operating room (OR) tables with surgical staff, and serves 3,000-5,000 using a medical staff of 87.

- Collective Protection EMEDS (CP-EMEDS) configurations can be hardened for chemical/biological weapon protection. All EMEDS now have CP capability.

- EMEDS Enhancement Packages provide EMEDS additional ventilators, pharmaceuticals and medical supply support to treat chemical and biological attack patients. The package was conceived, built and deployed in less than 30 days. Seven sets were deployed to our most vulnerable locations during the 2003 Global War on Terrorism operations.

- During OIF the EMEDS “light and lean”

design accounted for only 1% of the total Air Force equipment moved measured in weight and cube.

- Aeromedical Evacuation (AE) operations ensure continuity of care from the Theater of Operations to CONUS.

- Incrementalized AE teams provide quick response insertion capability that can build as requirements increase; 10-bed Mobile Aeromedical Staging Facility (MASF) with 15 personnel and two HUMVEES (“light and lean” with increased medical capability) proved to be a viable solution in austere settings.

- Critical Care Air Transport Teams (CCATTs).

AE Care in the Air provides flexible, fast response air transport of stabilized patients shortly after surgery. The combination of EMEDS, AE, and CCATT gives the AFMS the capability to stabilize, treat and evacuate critically injured troops from Iraq or Afghanistan to the US within just 48 hours of injury. During OIF, these teams moved far forward, at times tasked to accompany Special Operations patients on rotary aircraft.

- AE Liaison Teams place Air Force medics on the ground with other services’ medical units to coordinate AE operations.

- Ability to rig mobility aircraft already transiting area into AE platforms saves resources/lives.

- The TRANSCOM Regulating and Command& Control Evacuation System (TRAC2ES) computer system is capable of tracking any AE patient worldwide in near real-time; system brilliantly accurate and successful during OEF, the first major contingency in which it has been tested. TRAC2ES tracked over 42,200 patient movement requests in OEF/OIF from Oct 02 to Nov 03.

- Seamless integration of AE Control Team into Air Mobility Division of Air Operations

Center provided capability to coordinate prompt airlift for sick/injured personnel.

- AFMS also has 35 deployable “Biological Augmentation Teams” (BAT) to identify bacteriological pathogens (including anthrax, plague and tularemia) using a polymerase chain reaction system, known as RAPIDS.
- Other services and our allies benefited greatly from these capabilities in OEF and OIF. The Army and Navy are now developing similar light and lean capability following the Air Force lead.

## **MAIN POINTS**

- The incremental nature of EMEDS and AE teams contributed significantly to successes in OEF, OIF, and the Global War on Terrorism.
- Ability to configure most mobility aircraft to support AE, and dramatic improvements in worldwide patient tracking with TRAC2ES, ensure evacuees receive rapid and precise AE.
- The Armed Forces Epidemiology Board determined the Air Force Preventative Health Assessment(PHA) program to be the benchmark periodic health assessment program in DoD. It has directed other services to implement similar programs.
- AFMS deployed medical capability ranging from a flight medicine clinic to a 25 bed EMEDS to 24 locations in 12 countries during OIF. Over 100,000 patient encounters were documented during the build-up and prosecution of the war. Air Force medics located in theater, positioned with other services, in the air, and CONUS ensure worldwide continuum of care from battlefield to home base.
- Due to improved preventive medical capability, the Air Force sustained a rate of 20% fewer Disease/Non-Battle Injury (DNBI) patients than in Operation DESERT STORM.

# TRICARE Benefit Enhancements of the 108th Congress



## BACKGROUND

- The expanded benefits serve three important purposes: ensure members are physically fit and ready for deployment; provide health care benefits to members and families who are currently not covered by other health care plans; continue providing TRICARE coverage to all members and their families for Medical and dental screenings immediately upon notification of mobilization allow the quick resolution of medical issues that might otherwise prevent mobilization.
- Offers TRICARE coverage to unactivated troops and their families. Unemployed members, or members whose employers do not offer health insurance may now enroll themselves and their families in the TRICARE program on a cost-share basis.
- TRICARE enrollment up to 90 days prior to the start of activation.
- Increased TRICARE beneficiary counseling. Each TRICARE region must provide at least one full-time benefits counselor to assist and educate Guard and Reserve members about their health care benefits.
- Reduces financial hardship by avoiding potential double payment of health care deductibles for member with civilian coverage.
- Protects Reservists by making permanent the bill requiring physicians to charge no more than 15% above the TRICARE maximum allowable charge, therefore avoiding costly “balanced billing” claims.
- Standardizes pharmacy cost share for Medicare and TRICARE patients and authorizes the DoD

to pursue best business practices to identify cost-effective agents within the Uniform Formulary, TRICARE’s list of normally available medications.

- Provides opportunity for cooperative health care arrangements between military installations and local and regional health care systems in order to identify ways of delivering cost effective, coordinated health care.
- Requires baseline health data on all members as they enter military service, and blood sampling before and after deployment. This computerized compilation of data will provide for a better understanding of the military member’s health as effected by deployments.
- Requires the Secretary of Defense and the Secretary of Veterans Affairs, when proposing construction of a medical facility, to consult on the feasibility of accomplishing a joint project.
- A Government Accounting Office study of the benefit change will assess the impact upon Guard and Reserves health care, and recommend how benefits should be modified or enhanced in the future.

## MAIN POINTS

- The 108th Congress provided significant enhancements to the TRICARE benefit to Active Duty, Reserve Component, and retired beneficiaries and their families and expanded the duration of health care benefits provided to Guardsmen and Reservists and their families.
- Extends the coverage of TRICARE Standard to Reservists and their families The expanded benefits enhance Guard and Reserve recruiting and retention critical during the current era of frequent Reserve Component activations and deployments.
- Extends Transition Health Care Benefits. Members and their families may continue to use TRICARE for 6 months after demobilization. Previously, the maximum these beneficiaries could remain covered by TRICARE was 120 days after the member’s deactivation.

# TRICARE Next Generation (T-Nex)



## BACKGROUND

- Contractors will receive monetary incentives for maintaining high beneficiary satisfaction. Contractors have great flexibility to tailor their health care delivery system in pursuit of customer satisfaction.

- Cuts red tape for refer-

als to TRICARE network specialists. Lengthy determinations are no longer needed to schedule an appointment with a specialist; the contractor only needs to determine if the care is a covered TRICARE benefit.

- The speed with which patients are referred to, and seen by, specialists will increase, as patients will be allowed to schedule appointments with network specialists within 2-3 workdays after the contractor approves the referral care as a covered TRICARE benefit.

- Quality of care will be improved as TRICARE network specialists are now contractually obligated to return important medical information to the patient's referring providers within ten working days of specialty appointment.

- Urgent/emergent care referrals will be managed within twenty-four hours unless best medical practices dictate less time is required. In such cases, TRICARE network specialists are contractually obligated to return a preliminary report of the specialty consultation to the beneficiary's initiating provider within twenty-four hours of the urgent/emergent encounter or sooner based on criticality.

- To ensure high quality care, the contractor's provider network must be accredited by a nationally recognized accrediting organization no later than eighteen months after the start of healthcare delivery.

## MAIN POINTS

- Rated by customer surveys and independent analysts as providing the most generous benefits with the highest percentage of satisfied customers of all health care plans.

- Contracts address force health protection during contingencies. Contractors and the military will coordinate their responses to ensure the continuation of care during disasters or training. Contractors will also participate in bi-annual DoD/civilian contingency exercises and be required to put a contingency plan into action within forty-eight hours of notification of a natural disaster, terrorist attack, or other unforeseen event.

- Simplifies administration of TRICARE contracts by consolidating the seven worldwide service contracts into three in the continental US, and one overseas.

- Minimizes prescriptive requirements for contractors. It gives contractors the freedom to propose their own best practices to provide customer satisfaction and administer quality care.

- Will serve over 8.5 million beneficiaries in the Military Health System in the new north, south, and west regions.