TESTIMONY OF

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(ACQUISITION, TECHNOLOGY AND LOGISTICS)

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Current and Future DoD Capabilities for Conducting Tactical Air Operations and Electronic Warfare

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(Acquisition, Technology and Logistics)

Chairman Weldon, Representative Abercrombie, and Members of the Committee:

I am pleased to come before you today to talk about the Department's tactical aircraft programs. The Department is now operating with the oldest inventory of tactical aircraft since World War II, while concurrently maintaining the intense operating tempo required by the Global War on Terrorism (GWOT). Our Air Force aircraft are on average over 23 years old—older in many cases than the crew members who fly and maintain them. Navy's aircraft are in somewhat better shape and younger as a result of the decision to retire the A-6, and most recently the F-14, and continuing production and delivery of new F/A-18E/F models.

Concurrent with our efforts to modernize tactical aviation, potential competitors are developing new air and air defense systems that could, if we are not diligent, challenge our ability to maintain air dominance. New threats posed by increasing numbers of sophisticated ballistic and cruise missiles; advanced surface-to-air missiles (SAMs); combat aircraft and sophisticated weapons of mass destruction, increase the need for flexible and responsive tactical aviation. Adversaries are developing and fielding new ground-based air defenses, improved sensor capabilities and advanced fighter aircraft. These capabilities will increasingly challenge our legacy aircraft, their sensors and weapons. Not only must we be prepared to confront known threats, but we also must be ready for unexpected, disruptive breakthroughs in technology that may undercut traditional U.S. advantages. This drives a priority need to continue to modernize and recapitalize our tactical and support aircraft systems, and the weapons employed by our tactical aircraft. Maintaining a strong defense to overcome and defeat these threats remains a high priority for our Nation. We cannot indefinitely maintain our military advantage in the air using existing technology within our existing force structure.

The U.S. no longer enjoys a monopoly on advanced technology. We are witnessing the emergence of sophisticated air defense systems that threaten our capability to maintain air dominance. We cannot afford to relax, or slow our modernization, without the risk of losing our dominant position. Integrated air defense system advances include improved sensors, data processing and increasingly capable SAMs. These systems are incorporating faster, more accurate missiles, with multi-target capability, greater mobility and increased immunity to electronic countermeasures. Currently, some SAM systems are capable of achieving ranges of over 100 nautical miles (NM); newer systems will likely achieve ranges of over 200 NM by the end of the decade. These advanced missile systems will compel non-stealthy support platforms to standoff beyond their on-board sensor ranges, and the ranges achievable with most conventional ordnance. Projections indicate a two-fold increase in proliferation of these advanced SAMs over the exports we observed during the1990s. Older SAM systems are also being upgraded using modern technologies, improved propellants and increased mobility, resulting in reliable and credible threats.

There is also an increased threat from advanced fighter aircraft with state-of-the-art radar, digital electronic countermeasures, improved avionics, better weapons and even reduced radar signatures. Self-protection electronic countermeasure suites are growing in complexity and proliferation, potentially eroding our ability to target adversary aircraft. India and China are producing their own advanced fighters, increasing the quantity and quality of aircraft outside of the U.S. Advanced highly capable air-air missiles are widely available to countries with adequate fiscal resources. The military effectiveness of advanced fighters is being further enhanced by integrating support aircraft as force multipliers. Aerial refueling tankers are being procured to extend range and on-station time. Airborne early warning aircraft improve situational awareness and extend reach through command and control data link. Standoff jamming assets, in both manned and unmanned platforms, are being sought to deny our traditional sensor advantages.

In the face of this growing threat, we have been actively engaged in combat for the past 15 years. The ongoing GWOT requires us to operate tactical aircraft at an elevated and sustained operations tempo which impacts the material condition, readiness and service lives of our aircraft

weapon systems. We have increased investment in maintenance to keep our older aircraft flying, and to slow their decaying military utility, but equipment age and use are unrelenting forces. Maintaining the military utility of our aircraft is reflected in mission readiness challenges and high maintenance costs, and ultimately we must invest in procurement of new systems and spiral modernization of the systems we own. As our legacy systems age, they require more frequent maintenance and replacement of parts; meanwhile the wear and tear of increased operational use expends our aircraft service life, exposes our equipment to extreme conditions and, in some cases, delays routine maintenance, adding to the effects of heavy usage.

In the face of these challenges, we have a pressing need, which we have been actively addressing, to recapitalize our aircraft and operational infrastructure in order to maintain the tactical aircraft capabilities we project will be needed into the foreseeable future. This means retiring and replacing our oldest, least capable and most expensive aircraft and selective retention of some of our older systems until newer systems are available to fulfill the need. We recognize and fully understand the need to do this in a fiscally prudent manner. The fiscal realities we must deal with are reflected in the structure of the President's Fiscal Year 2007 Budget for tactical aviation.

The F-22 Raptor, the F-35 Joint Strike Fighter and the F/A-18E/F have been, and remain, the centerpieces of our tactical aircraft modernization plans. Improvements to the venerable A-10 Thunderbolt, which first flew in 1972, are also a part of our tactical aircraft modernization plan. The Department has been working aggressively with the Navy, Air Force and Marine Corps in this highly constrained fiscal environment to maintain a solid tactical aircraft modernization plan, that will both provide the military capability needed to address the projected threat and is fiscally responsible. This has caused us to make a number of very difficult decisions in our deliberations on the President's 2007 Budget. The Committee is well aware of these decisions which include restructure of the Joint Unmanned Combat Air System; cancellation of the E-10 and the Joint Strike Fighter Competitive Engine programs; ending C-17 production; and early retirement of the F-117, U-2 and 20 of our B-52 bombers.

Next, I will discuss the major elements of our tactical aircraft modernization strategy. I will also briefly address several of the decisions that are directly related to tactical aviation and provide the rationale for our actions. While difficult, these decisions make available the investment funds needed to modernize our tactical aircraft force structure and support future warfighting requirements. The increased capabilities we are seeing as a result of the introduction of the F-22, continued production of the F/A-18E/F, and improvements to the F/A-18E/F and A-10, will result in the ability to perform missions more efficiently and more missions per platform. This increase in capability allows for the reduction of our overall infrastructure while maintaining the resources required to support joint warfighting requirements. The improvements and newer systems we are developing and procuring are expected to cost far less to operate and maintain, and they are designed to defeat projected threats. In order to realize the new capabilities and lower ownership costs in the future, the major challenge we face is the long timeline and high up-front cost to develop and procure these new systems.

The A-10 Thunderbolt has proven its value in the GWOT, and has emerged as an important element of our overall tactical aircraft force structure. This year, the Air Force will begin operational fielding of the A-10 Precision Engagement modification that integrates advanced targeting pods with data link to enhance employment of global positioning system (GPS)-aided munitions. This modification will also improve the pilot's situational awareness, and A-10 responsiveness, and weapon delivery accuracy, while reducing the risk of fratricide. The Air Force is also improving sustainability of its A-10 fleet by continuing a service life extension program that doubles its airframe life. The A-10 Propulsion Upgrade Program will modifies its General Electric TF34-100A engines to provide approximately 30% more thrust, which is needed to overcome limitations when operating from expeditionary airfields at high elevations and high temperatures. The increased power will also improve the A-10's medium altitude performance and increase its weapon payload, thus improving both survivability and lethality.

The F/A-18E/F Super Hornet program continues to excel. Cost, schedule and performance remain outstanding. The program continues to deliver aircraft up to three months ahead of contract schedule. Operational expectations of the Super Hornet have been proven in

combat. In fact, VFA-115, the first F/A-18E squadron, has just returned to the Northern Arabian Gulf to begin its second combat cruise. The Super Hornet has flown over 260,000 flight hours. Due to the success of the Super Hornet program, measured in both increased warfighting capability as well as significant operational cost savings compared to legacy aircraft, the Navy accelerated integration of the Super Hornet and retirement of the F-14 Tomcat. VF-31 and VF-213 have just returned from the last cruise with Tomcats. While the squadrons' performance, tested in combat, was flawlessly representative of the long and honored history of the Tomcat, as these squadrons begin their transition to the F/A-18E/F they will provide the nation with significantly enhanced capabilities at lower cost. The Navy continues to make smart investments in proven warfighting technologies as part of its balanced approach to cost effective increases in needed warfighting capabilities. This measured growth philosophy has resulted in an aircraft, first produced 20 years ago, that will synergistically complement the arrival for the Joint Strike Fighter on Navy flight-decks in the 2013 timeframe.

The F-22 is the world's first so called fifth generation fighter – an aircraft with superior survivability, lethality and maintainability. The F-22 is currently the only aircraft in the world with breakthrough levels of performance great enough to classify as a next generation fighter, but it will soon be joined by the Joint Strike Fighter. The F-22 along with the Joint Strike Fighter are the Air Force's primary fighter modernization and recapitalization programs. The F-22 is operational today. It delivers joint air dominance capabilities to counter persistent and emerging threats to national security. It brings improvements in every aspect—air-to-air, air-to-ground, all-aspect stealth, and an open, adaptable mission system architecture. The Air Force views it as an insurance policy against future threats to joint air dominance. With its planned modernization improvements, the F-22A is the only fighter currently in production that is capable of defeating the threats projected over the next 20-30 years. The F-22 is in full rate production, and its performance continues to meet or exceed warfighter performance requirements.

The F-22 brings impressive capabilities to a variety of conflict situations. A determination of the right number of F-22s should be based on a broad assessment of the entire TACAIR force, and not just one platform in isolation. On that basis, DoD has invested in a mix

of F-22, Joint Strike Fighter and F/A-18E/F Super Hornet aircraft. The idea is to balance the requirement for robust 5th generation capabilities with the need to buy sufficient quantities of platforms to operate across the globe in peacetime contingencies and the Global War on Terrorism.

The F-35 Joint Strike Fighter is also a fifth generation fighter. The Joint Strike Fighter is a development program that will produce three variants—a Conventional Takeoff Variant, a Short Takeoff and Vertical Landing Variant, and a Carrier Based Variant. The aircraft will be procured by the U.S. Air Force, Navy, and Marine Corps as well as the United Kingdom and seven other international partners. While almost as capable as the F-22 in the air-to-air role, it will be superior in the air-to-ground mission, complementing the capabilities of the F-22. The Joint Strike Fighter will recapitalize combat capabilities currently provided by the F-16 and A-10. Optimized for all-weather performance, Joint Strike Fighter will specifically provide affordable precision engagement and global attack capabilities. The Joint Strike Fighter program is making progress, while continuing to address challenges associated with concurrent development of three aircraft variants.

Airborne Electronic Attack is a key enabler for many warfare areas, spanning traditional conflicts and counter-insurgency operations. Airborne Electronic Attack has shown its value in virtually every recent operation and is clearly making a difference in Operation Iraqi Freedom and Operation Enduring Freedom.

Over the next ten to twelve years, the Department will improve the capabilities of the existing fleet of EA-6B aircraft and Navy units will transition to the EA-18G. These systems will be augmented by an unmanned "stand in" capability in the form of the Miniature Air-Launched Decoy (MALD). The Air Force is currently leading the development of this small, expendable loitering system, which will perform both decoy and radar jamming functions.

The EA-18G will be the fourth major variant of the F/A-18 series of aircraft. It will serve as the replacement for the EA-6B while providing a significant enhancement over the EA-6B's capability to detect, identify, locate, and suppress hostile emitters. The EA-18G will blend the

proven capabilities of the EA-6B with the missionized F/A-18F airframe. The result will be a significant increase in warfighting capability, survivability, and compatibility with performance profiles of the aircraft it supports in combat. The shared airframe results in cost savings to all Super Hornet variants by enabling the optimization of common support and maintenance infrastructures. The EA-18G program represents a low-risk approach to enhancing critically needed capability for the Global War on Terrorism and resolving the challenges of the EA-6B airframe brought on by age and high demand utilization. The EA-18G represents an optimized blend of cost and capability.

The Department's platforms and components of the airborne electronic attack system of systems were selected to provide the Department with the capability to defeat the entire adversary integrated air defense system kill-chain. This suppression of enemy air defense mission is still important for area access and our requisite airborne electronic attack capability requirement to respond to advances in adversary integrated air defense range and sensor and network technologies.

Recent operations in Afghanistan and Iraq underscore the expanding roles and missions for our airborne electronic attack assets and highlight opportunities for future airborne electronic attack capabilities. In addition to the traditional suppression of enemy air defense mission, our airborne electronic attack assets have provided ground force support, navigation warfare, and counter-communications, among other capabilities. The Department has several studies ongoing to investigate options for providing the required capabilities, force mix and numbers to support these growing airborne electronic attack missions and the growing demand for airborne electronic attack assets. The United States Strategic Command has developed an operational concept for electronic warfare which addresses other applications of electronic attack. In lieu of just airborne electronic attack in support of suppression of enemy defenses, this operational concept documents the Department's vision for dominating the entire electromagnetic spectrum in future operations. It forms the foundation for the electronic warfare capabilities-based assessment that United States Strategic Command is leading to identify capability gaps in electronic warfare. The Military Services are developing an airborne electronic attack system of systems concept of operations to identify required capabilities, and the Office of the Secretary of

Defense and the Joint Staff are conducting a Joint airborne electronic attack study to review required capabilities and force sufficiency in light of the expanding airborne electronic attack missions.

Secretary Rumsfeld has directed a study on airborne electronic attack as a follow-up to the 2001 airborne electronic attack Analysis of Alternatives. The new study will draw heavily on the body of work from the 2001 study in analyzing traditional warfight challenges. Beyond the earlier work, the new study will assess needs and possible solutions for airborne electronic attack in the context of the GWOT.

The new study will also take into account changes in the DoD program. A particularly important area of examination is stand-off electronic suppression. The B-52s were to be modified to carry specialized receivers integrated with Stand-Off Jamming (SOJ) pods to support expeditionary AEA capability. We terminated the B-52 SOJ Research, Development, Test and Evaluation funding in the 2007 President's Budget due to estimated program cost which was out of line with its planned capability. The upcoming airborne electronic attack study will assess the capabilities of the program of record and develop options to mitigate warfighting risk.

The weapons employed by our tactical aircraft are an integral part of our overall tactical aircraft weapon system capabilities. We have a wide variety of weapon capabilities, ranging from "dumb bombs" to sophisticated precision guided missiles and weapons, including some with stealth features to enhance their survivability. Our premier air-to-air missiles are the radar guided AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM) and the passive infrared guided AIM-9 short range missile. The Department has ongoing improvement programs for both the AIM-120 and AIM-9 missiles. These improvements, the AIM-120D and the AIM-9X Upgrade, are needed to maintain air-to-air dominance into the future and to defeat advanced cruise missiles being developed by potential adversaries. On the air-to-ground side, the stealthy Joint Air-to-Surface Standoff Missile (JASSM) is resolving reliability issues and is in production. Our premier air-to-ground weapon development program is the Small Diameter Bomb. The Small Diameter Bomb is a 250 lb-class, standoff, air-to-ground weapon, with an associated 4-station weapon carriage system. The Small Diameter Bomb design improves

accuracy, reduces collateral damage, increases aircraft weapon loads, and consequently, the number of kills per platform per sortie. Using an evolutionary acquisition approach, Increment I will provide all-weather capability against fixed and stationary targets, and will enter service with the F-15E late this year. Increment II will provide adverse weather capability against moving targets, possibly with a multi-mode seeker and data link, and is slated to deliver capability after 2014. Small Diameter Bomb will provide a capability to carry a larger number of weapons in internal weapon bays, significantly enhancing the air-to-ground capability of the F-22 and Joint Strike Fighter.

The Department agrees with the Air Force's plan for phased retirement of the F-117A Nighthawk, which is now scheduled to occur earlier than originally projected. While the F-117 has proven its worth in combat as a first generation low observable stealth aircraft, it is among our most expensive aircraft to maintain. With the increased capability of standoff weapons systems, such as JASSM, planned advancements in unmanned air systems, and procurement of newer advanced stealth platforms, such as the F-22 and Joint Strike Fighter, it is appropriate from both a cost and capability perspective to begin the phased retirement of the F-117A aircraft.

I would like to spend a few minutes discussing the Department's decision to cancel the Joint Strike Fighter F136 competitive engine program. The Department reviewed the Joint Strike Fighter two-engine strategy as part of the 2007 President's budget deliberations. Based on prior analysis, conducted during the initial discussions of incorporating a two-engine strategy, and analysis supporting the budget deliberations, the decision was made to cancel the F136 alternative engine. The Department acknowledges that there are potential benefits to a competitive engine strategy. These benefits include improved reliability, maintainability, industrial base considerations, and potential long-term performance growth. However, available data has never supported cost savings as a meaningful benefit of Joint Strike Fighter engine competition. Further, there is also the possibility of higher unit costs, associated with efficient production lines for each supplier and fewer units produced on each line. In addition, a second supplier potentially introduces another supply chain, which could increase support costs.

Advancements in engine design and production have significantly reduced the risk of systemic, single point engine failure as demonstrated by the successes of the F-22 and F/A-18 aircraft. The Joint Strike Fighter primary engine, the F135, is a derivative of the F-22's F119 engine which is performing reliably after roughly 18,000 flight hours. The F135 has almost 5,000 test hours, using the same engineering and manufacturing processes as the F119 engine. Initial testing on the Joint Strike Fighter F135 engine has further substantiated our confidence in a single engine supplier. The Department carefully considered the risks associated with a sole source strategy and found them to be acceptable.

The International Partners were not included in the budget discussions involved with the F136 decision due to the pre-decisional nature of budget deliberations. The previous analysis, conducted during the initial discussions of a competitive engine strategy in 1998 and 2000, concluded that the partners were generally in favor of the competitive aspects associated with two engine suppliers. Joint Strike Fighter international participation and work share remains a Department focus and was discussed at length.

A key goal of the Joint Strike Fighter program is to deliver 5th generation capability at an affordable price. The decision on the Joint Strike Fighter second engine supplier was based on two main factors: DoD's collective experience with fighter engines—going back several decades—and our more recent technical achievements in the JSF program. While the benefits of a second supplier are undeniable, our judgment is that those benefits are not worth the substantial financial cost of a second supplier. Our experience tells us that savings from engine competition will not be large enough to recoup the significant R&D investment needed to develop a second source of production. Our test experience on the primary F135 Pratt and Whitney engine, along with operational achievements of the related F119 engine in the F-22, indicates that the Pratt Whitney engine has excellent performance and high reliability. We believe we should invest in a second supplier if and when it is necessary, and not spend precious resources to mitigate a problem that does not exist.

Ultimately, the decision to cancel the F136 engine was based on affordability. Based on the above factors, the Department concluded that the upfront costs associated with maintaining

two engine suppliers for the Joint Strike Fighter program were not the most efficient use of Department resources. If the Joint Strike Fighter is to remain affordable for ourselves, and our partners, these types of difficult decisions are required. This decision is the right one for the Department, and I urge your support.

While bombers have traditionally been viewed as strategic platforms, separate from tactical aviation, recent experience in Afghanistan and Iraq blurred the distinction between tactical aviation and bombers. In this context, the President's Fiscal Year 2007 Budget decision to retire 20 B-52s, was in essence a tactical aviation decision. The B-52's have been a stalwart of our long-range strike force for decades, and we expect the remaining B-52s to be viable for many years to come. However, the Department is making substantial investment in modernization of the B-1 and B-2 aircraft, improved standoff weapons systems, advancements in unmanned air systems, and procurement of advanced stealth platforms. With these improved capabilities, it is appropriate, from both a cost and capability perspective, to reduce the B-52 inventory. We are also investing in development of new long-range strike capabilities.

One of the aspects of the President's Fiscal Year 2007 Budget that is receiving congressional attention is the multiyear procurement strategy for the F-22. As previously noted, the F-22 is the world's only fifth generation fighter that is in production. A primary goal of our F-22 acquisition strategy is to maintain an active fifth generation fighter production line and maintain the tactical aircraft industrial base until the Joint Strike Fighter matures. In doing this, we wanted to keep the overall quantity of F-22 at a level similar to those reflected in the President's Fiscal Year 2006 Budget (179 aircraft). To control costs to an affordable level, we propose a 3-year multiyear procurement beginning in Fiscal Year 2008. Earlier transition to multiyear procurement is not achievable and delaying a multiyear strategy would minimize the benefits to be derived. The delays experienced by the Air Force in awarding Lot 5 -- the contract was awarded in November 2005, gave us an opportunity to achieve our goals, while also reducing the Department's funding requirements for F-22 in Fiscal Years 2007 and 2008. This provided over $3 billion for other important Defense priorities. To transition to the multiyear for Lot 7 without costly interruption of the production line and suppliers, we structured an unusual, phased funding strategy, which provides for procurement of subassemblies and other items in

Fiscal Year 2007, with final assembly in Fiscal Year 2008. As a result, the President's Fiscal Year 2007 Budget reflects zero quantities in Fiscal Year 2007, although work on Lot 7 (the first lot of a multiyear procurement) will be continuing. To support our goal of a warm TACAIR production capability with the needed cost advantages of a multiyear procurement, the Department seeks the Committee's support for our strategy, and approval of the 3-year planned multiyear procurement beginning in Fiscal Year 2008. It has been and remains our intention to be completely open with the Congress on our F-22 funding strategy. In view of the multiple demands for limited resources, we concluded that this is the most efficient approach to sustainment of F-22 production. The Air Force plans to deliver their business case analysis for the multiyear procurement in late May 2006.

In the Quadrennial Defense Review, the Department examined a number of options for varying levels of strike fighter mix. We looked at the warfight and cost implications of buying fewer variants of Joint Strike Fighters, increasing and decreasing the number of F-22s, and buying more legacy aircraft at the expense of fewer fifth generation platforms. Our analysis showed that buying fifth generation tactical aircraft assets for both the Air Force and the Department of the Navy mitigated risk better than concentrating that capability in any one service. The results of this study are reflected in the President's Fiscal Year 2007 Budget, which sets forth a balanced portfolio of tactical aircraft assets. These include the Joint Strike Fighter aircraft designed to meet Air Force, Navy and Marine Corps needs, the highly capable F-22 fighter geared specifically to Air Force missions, and F-18E/F Super Hornet aircraft that have already proved their worth in the Global War on Terror.

The Department's tactical aviation modernization plans provide Joint warfighters the range, flexibility, persistence and precision needed to fight and win. The F-22 is in full rate production and flying today. Its performance as demonstrated recently in Follow-on Operational Test and Evaluation continues to meet warfighter requirements. The F-22 spiral modernization plan will enhance its air-to-air and air-to-ground target engagement capability. Likewise, the F/A-18E/F continues to deliver on schedule and on cost. It is providing the Navy warfighters with a reliable and capable weapon system that is on the front lines daily. When Joint Strike Fighter arrives with its improvements in air-to-ground weapon delivery capability, range

improvements, all-aspect stealth, and open, adaptable mission system architecture, the Nation will be fully prepared to address projected threats requiring a strong tactical aviation response. Until then, the F-22 fills an important nitch against future threats to Joint Air Dominance. The F-22 is the only fighter currently produced that will defeat all conceivable air-air threats to Joint Air Dominance. It is expected to maintain this edge over the next 20-30 years in the air-to-air role, while also bringing a respectable air-to-ground capability. The F-35 Joint Strike Fighter, also a 5th generation fighter, will complement the capabilities of the F-22.

In closing Mr. Chairman, thank you for the opportunity to explain the Department's current and future capabilities for conducting TACAIR operations and electronic warfare. I am available to answer any questions you and the members of the Committee may have.