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REFORM**

**TESTIMONY OF  
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**BEFORE THE UNITED STATES HOUSE  
COMMITTEE ON  
OVERSIGHT AND GOVERNMENT REFORM  
SUBCOMMITTEE ON  
NATIONAL SECURITY AND FOREIGN AFFAIRS**

**March 23, 2010**

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# Acquisition of Department of Defense Unmanned Aircraft Systems

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Chairman Tierney, Congressman Flake and Members of the Committee:

Thank you for the opportunity to appear before you today to discuss Department of Defense (DoD) unmanned aircraft system (UAS) acquisition programs, specifically, Department initiatives to achieve greater commonality and efficiencies. My testimony will address the full spectrum of DoD UAS, not just the larger (Groups 3-5) aircraft addressed by the Government Accountability Office (GAO) in their July 2009 report. The distinction is important because we have pursued opportunities for commonality and efficiency successfully across the full range of DoD unmanned aircraft, including small UAS. Table 1 is included to identify the broad diversity of DoD UAS supporting a wide range of warfighter needs. Classifications are based on aircraft weight, operating altitude, and speed.<sup>1</sup>

UAS Category	Max. Gross Takeoff Weight (lbs)	Normal Operating Altitude (ft)	Speed (KIAS <sup>2</sup> )
Group 1	0-20	< 1200 AGL <sup>3</sup>	100
Group 2	21-55	< 3,500 AGL	<250
Group 3	<1320	< 18,000 MSL <sup>4</sup>	Any
Group 4	>1320		
Group 5			

**Table 1: JUAS CONOPS UAS Categories<sup>5</sup>**

<sup>1</sup> Specifics on the methodology employed by the JUAS COE to determine groupings are found in the Joint UAS Concept of Operations, 2<sup>nd</sup> Edition, November 2008.

<sup>2</sup> Knots (Nautical Miles per Hour) Indicated Airspeed

<sup>3</sup> Above Ground Level

<sup>4</sup> Mean Sea Level

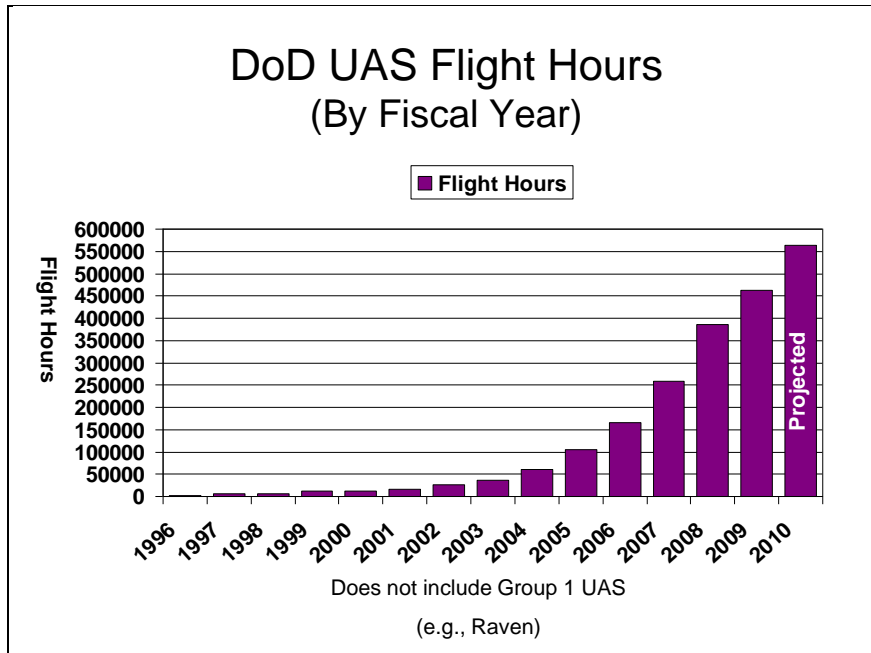
<sup>5</sup> Lighter than air vehicles are classified by the highest of their operating attributes.

The GAO Report, “Defense Acquisitions: Opportunities Exist to Achieve Greater Commonality and Efficiencies among Unmanned Aircraft Systems,” released in July 2009, reviewed DoD UAS Groups 3-5. The GAO had five recommendations. The Department partially concurred with the recommendation to conduct a rigorous and comprehensive analysis of requirements for current UAS and to develop a strategy for making systems and subsystems among those programs more common. At the time of the review, the UAS Task Force with support from the Joint Requirements Oversight Council had already completed a comprehensive analysis of the potential for commonality between Air Force Predator and Army Extended Range Multi Purpose UAS. Since the report was released, the UAS Task Force in coordination with the Joint Staff conducted a rigorous review of the Navy Broad Area Maritime Surveillance (BAMS) and Air Force Global Hawk programs to evaluate opportunities for achieving greater commonality and joint effectiveness. We have completed that analysis along with one addressing Signals Intelligence (SIGINT) payload commonality. I will address the findings of both these analyses later in my testimony. The Department concurred with remaining four recommendations which included requiring the Military Departments to identify and document in their acquisition plans and strategies specific areas where commonality can be achieved, to take an open systems approach to product development, to conduct a quantitative analysis that examines the costs and benefits of various levels of commonality, and to establish a collaborative approach and management framework to periodically assess and effectively manage commonality.

Since the GAO released its report, the Department has completed its 2010 Quadrennial Defense Review (QDR), and the President has submitted his Fiscal Year (FY) 2011 budget. The QDR highlights the warfighters' need for increased intelligence, surveillance, and reconnaissance (ISR) and force protection capabilities, and the budget reflects the Department's increased investment to meet that need. This investment is consistent with the Acquisition Reform goal in DoD's High Priority Performance Goals presented in the Analytic Perspectives volume of the President's FY 2011 Budget.

The Department's investment and operation in UAS continues to increase as the demand for the wide range of UAS capabilities expands. The DoD annual budget for development and procurement of UAS has increased from \$1.7 billion in FY 2006 to over \$4.2 billion in FY 2010. During the same time period DoD UAS operations have grown from 165,000 hours to over 550,000 hours annually (as shown in Figure 1 on page 4), and the unmanned aircraft inventory has increased from less than 3,000 to over 6,500.

The Department is making significant investments in UAS, and that is projected to grow significantly over the next five years. Achieving commonality, interoperability, and joint efficiencies in development, production, and operations and support is critical to controlling cost and delivering interoperable and reliable systems to the warfighters with the capabilities they need to win. We continue to improve the Defense Acquisition System, and have formed a UAS Task Force to jointly address critical UAS technical and acquisition issues to enhance operations and enable interdependencies, commonality and other efficiencies.



**Figure 1 DoD UAS Flight Hours**

I will now update you on the DoD UAS acquisition and summarize our efforts to increase commonality and achieve additional efficiencies.

### **Update on DoD UAS Programs**

#### Overview of UAS Programs

In FY 2010, the Department made a commitment to grow Air Force Predator/Reaper combat air patrols (CAPs) to 50 by FY 2011. The Air Force is on track to achieve this goal and will continue to expand force structure to support up to 65 CAPs by FY 2013. The Army is expanding all classes of UASs, including the accelerated production of the Predator-class Extended Range Multi-Purpose (ER/MP) UAS and upgrading its Shadow UAS. The Army is embedding UAS in all its Brigade Combat Teams. In addition to the Quick Reaction Capability of four ER/MP aircraft already

fielded in Iraq, the Army will field a second Quick Reaction Capability to Afghanistan in FY10. The Army also plans to field 13 ER/MP systems of 12 aircraft each to each Combat Aviation Brigade, starting in FY 2011. The Navy is in the Engineering and Manufacturing Development phase for its Broad Area Maritime Surveillance (BAMS) UAS, and is introducing sea-based UASs with its Vertical Take Off Unmanned Aerial Vehicle (VTUAV) and its Small Tactical Unmanned Aircraft System (STUAS) programs. The Navy plans to award the STUAS contract during the next quarter. All Military Departments and the U.S. Special Operations Command (SOCOM) are operating the hand-launched Raven with over 4,700 aircraft delivered to the warfighter.

#### Overview of Department Initiatives to Increase Commonality and Efficiencies

The *Department of Defense Report to Congress on Common Control Stations and Payloads for Manned and Unmanned Aircraft Systems (UAS)* was forwarded to the congressional defense committees on June 25, 2009, in response to Section 144 of the National Defense Authorization Act for FY 2009. It describes the Department's initiatives to increase commonality and efficiencies for manned and unmanned aircraft systems. The Department of Defense Instruction (DoDI) 5000.02, dated December 8, 2008, improves the Defense Acquisition System by providing increased management focus early in program creation; this enables the Department to identify opportunities for commonality and efficiencies across Military Departments and programs at the Material Development Decision milestone in the acquisition life cycle. The UAS Task Force, led by the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) with members from the Military Departments, the Office of the Secretary

of Defense (OSD), the Joint Staff, and Joint Forces Command, continues to coordinate critical UAS issues to enhance operations, enable interdependencies, and facilitate delivery of UAS capability to the warfighter. Key areas of UAS TF activity include civil airspace integration, frequency spectrum and bandwidth utilization, information assurance and encryption, and interoperability among ground stations and airframes across Military Departments with payload and sensor management transparencies.

In addition to working within the Department toward improving commonality and efficiencies among UAS, the DoD has joined with the Department of Transportation, the Department of Homeland Security, and the National Aeronautics and Space Administration to form a UAS Executive Committee (ExCom) to rapidly improve public UAS integration into the National Airspace System (NAS). DoD UAS require NAS access for training, development, and operations. Access is critical to supporting multiple warfighters with the ISR and force protection capabilities required to fight and win our current overseas contingency operations. We continue to engage directly with the Federal Aviation Administration (FAA) via the UAS ExCom to identify and resolve issues surrounding integration of UAS into the NAS. The FAA hosted the first UAS ExCom meeting in October 2009.

I will now summarize the Department's progress toward achieving greater commonality and efficiencies for the Group 3-5 UAS programs reviewed for the GAO Report, and also Group 1-2 UAS programs that were not part of the study.

RQ-4 Global Hawk / Broad Area Maritime Surveillance (BAMS) Joint Efficiencies

The Air Force Global Hawk and Navy BAMS UAS programs are just two of our unmanned systems that continue to pursue opportunities for greater commonality and efficiency. The Department understands that there exists a significant cost and operational benefit in leveraging system commonality where appropriate in the acquisition of our weapon systems. Specifically, within Global Hawk and BAMS UAS programs we are stressing several developmental areas to increase commonality both in weapon system design and during military operations. We are utilizing common production facilities at Palmdale, California, for both Global Hawk and BAMS EMD aircraft. Additionally, we are addressing critical flight safety issues of a new and technologically sound approach to operate UAS in the national airspace through the joint development and acquire a sense and avoid system. The Air Force and the Navy have agreed to jointly acquire a common radar as part of that system and the Military Departments are cooperating in expanding our aircraft certification process to include unique UAS elements. As the Global Hawk and BAMS systems share common elements and both operate beyond-line-of-sight long endurance missions, we are fully leveraging these similarities by re-architecting the mission ground stations to streamline operations and mission effectiveness. The payoff for this production decision of ground station commonality is that we expect to enact total cost efficiencies for the equipment, sustainment, and training as well as reap operational efficiencies for the warfighter. OSD and the Joint Staff are actively coupling these acquisition efforts; together we monitor and encourage all efforts to increase joint efficiencies. Our efforts to increase commonality are documented in the Acquisition Decision Memorandums and Joint



Requirements Oversight Council Memorandums that direct these two Military Departments to work together to gain even more elements of commonality, such as incorporating a similar anti-ice technology for both Global Hawk and BAMS UAS aircraft to expand operations in icing conditions. Other specific directed actions include efforts to increase joint efficiencies in the areas of operations and support. Examples include: common basing; consolidated maintenance; beyond-line-of-sight command and control; processing, exploitation and dissemination functions; training; and supply chain management. In summary, Global Hawk and BAMS UAS are two unmanned systems that embrace the Department's efforts to use commonality and joint efficiency efforts to lessen total program costs, leverage benefits derived from joint technology development, and implement common systems when favorable.

#### Electro Optical Infrared (EO/IR) Sensor Payload for Predator and ER/MP

The Air Force and the Army have converged on a common electro optical infrared (EO/IR) sensor payload for Predator and ER/MP. The sensor will provide high definition (HD) full motion video and enhanced target location accuracy (TLA) supported by a fully digital infrastructure. The Military Departments plan to procure from a common contract with the initial orders for the HD EO upgrade placed the third quarter of this fiscal year, and deliveries to the Army in FY 2011. HD IR and TLA will be added sequentially and the fully upgraded sensor will be fielded in FY 2014 by both Military Departments.

#### Signals Intelligence (SIGINT) Payload

The Department, recognizing that requirements for the Air Force's Airborne Signals Intelligence Payload (ASIP) and the Army's Tactical Signals Intelligence

Payload (TSP) sensors appear similar, determined a UAS SIGINT sensor business case analysis was necessary to provide an independent assessment of the cost, schedule, and performance implications of migrating to a highly common SIGINT system for the Predator, ER/MP, and Reaper fleets. The UAS SIGINT business case analysis includes a comparison of the cost versus capability for the ASIP and the TSP sensors to meet the broad range of Military Departments', and Component and Combatant Commanders' SIGINT capability requirements, and a technical assessment of each system providing context for the requirements and desired performance parameters, industrial base issues and program oversight. Special consideration was given towards technology maturity, integration, and employment criteria to better understand the operational risks and future challenges. The Department expects to finalize its assessment of the findings next month, and will include its assessment in its *Report to Congress on Unmanned Aircraft Systems (UAS)-based Signals Intelligence (SIGINT) Payload*.

### Shadow UAS

The Army and the United States Marine Corps (USMC) continue to procure and operate the common Shadow UAS while incorporating program improvements. The Army Procurement Objective has increased from the initial 41 in the original December 26, 2002 Acquisition Program Baseline to 102 in July 2008. All of the aircraft are Shadow 7B variants with several different configurations. Program has been in full rate production since 2002 with current Army production ending in FY 2011. The USMC also operates the Shadow system and is procuring 13 systems utilizing the Army

production contract. The USMC utilizes the Army training base and sustainment capability to reduce cost and increase efficiency.

The Shadow program has undergone numerous upgrades since the full rate production decision in FY 2002. Major upgrades completing test include incorporation of a laser designator (LD) in the EO/IR sensor, engine electronic fuel injection (EFI), and aircraft re-wing. LD provides precision targeting capability for laser munitions including Hellfire equipped Apaches, and other aircraft capable of carrying laser seeking munitions. EFI improves engine performance, fuel consumption, and reliability, and eliminates carburetor icing. Re-wing improves endurance from five to eight hours and enables future incorporation of Tactical Common Data-Link. All these Army funded upgrades will migrate into both Army and USMC Shadow force structure.

#### Groups 1-2 UAS Programs

While not included in the GAO's recent review, I would like to take this opportunity to tell a success story with respect to small UAS (SUAS) commonality. Immediately following September 11, 2001, the Military Departments and SOCOM procured a number of different small hand-launched UAS. The SUAS proved to be a low cost, highly effective force protection system, and many different types were procured; Pointer, Dragon Eye, Swift, Raven A, and Desert Hawk were the primary systems fielded, but there were others as well. Today, all the Military Departments and SOCOM are procuring the Raven B system using the same contract and realizing cost savings while gaining improved performance. Today's Raven B has greater capability than the original system; improvements include greater aircraft endurance, and improved sensor,

communications and ground station capabilities. There are over 1,500 Raven B systems fielded; each system includes 3 aircraft.

### **Conclusion**

In closing Mr. Chairman, the Department's investment in UAS is projected to continue to grow. We recognize that achieving commonality, interoperability, and joint efficiencies in development, production, and operations and support is critical to controlling cost and delivering interoperable and reliable systems to the warfighters with the capabilities they need to win. We continue to improve the Defense Acquisition System, and have formed a UAS Task Force to jointly address critical UAS issues to enhance operations and enable interdependencies, commonality and other efficiencies. These Task Force efforts are consistent with the Acquisition Reform goal in DoD's High Priority Performance Goals presented in the Analytic Perspectives volume of the President's FY 2011 Budget.

Thank you for the opportunity to testify before the Committee. I would be happy to answer any questions you and the Members of the Committee may have.