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HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
U.S. HOUSE OF REPRESENTATIVES

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TACTICAL AIR AND LAND FORCES
U.S. HOUSE OF REPRESENTATIVES

SUBJECT: FY17 Air Force Rotorcraft Modernization Programs

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Introduction

Chairman Turner, Ranking Member Sanchez, and distinguished members of the subcommittee, thank you for calling this hearing and for the opportunity to provide you with an update on Air Force rotorcraft modernization efforts important to our Air Force and to the Nation. Air Force rotary wing assets are critical to the mission of the Air Force and provide worldwide support to Combatant Commanders. The HH-60G continues to support the full spectrum of the Service's Core Function of Personnel Recovery until replaced by the Combat Rescue Helicopter. The UH-1N provides security for the Air Force's nuclear missile fields, supports continuity of government and continuity of operations in the National Capital Region, and provides vertical airlift support for a variety of other missions. Finally, the CV-22 provides US Special Operations Command and the geographic combatant commanders with a unique long-range vertical lift capability.

Regarding Science & Technology (S&T) the Air Force collaborates and coordinates with our Service partners through Reliance 21 and multiple DoD Communities of Interest (COI's) to synergize our activities and investments and our roles and responsibilities in the research and development of military air vehicles, including rotorcraft. Reliance 21 is the overarching framework of the DoD's S&T joint planning and coordination process. With regards to rotorcraft research and development (R&D), the Army is the lead Service. The Air Force watches and follows Army rotorcraft S&T programs, including the Army-led Joint Multi-Role Technology Demonstrator (JMR-TD). This Army effort will fly demonstration aircraft to prove out Future Vertical Lift (FVL) technology and inform requirements development. The Air Force and Army coordinate their rotorcraft S&T efforts, leveraging each other's expertise and technology to ensure synergy and efficiency. In addition, Air Force partnerships extend to other government agencies and industry through S&T consortiums such as the Versatile Affordable Advanced Turbine Engines Program (VAATE), which covers air-breathing propulsion and includes turbine engines for rotorcraft.

The Air Force is dedicated to sustaining, modernizing, and recapitalizing our rotorcraft assets as necessary to accomplish the combat search and rescue, nuclear security, continuity of government, and special operations missions.

Combat Search and Rescue (HH-60G and CRH)

The Air Force makes a significant investment to train and equip dedicated Rescue Forces capable of providing Personnel Recovery in support of the Joint Force. Air Force Rescue Forces recover isolated personnel in contested environments, marginal weather areas, and during very low illumination. Since September 11, 2001, our Rescue Forces have flown over 15,000 missions to recover isolated personnel in hostile enemy territory. During Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF), for example, Air Force Rescue Forces repeatedly landed in contested areas to recover 5,400 injured American and Coalition Soldiers, Sailors, Airmen and Marines. Our rescue crews also assist with casualty evacuations, medical evacuations, special operations support, and humanitarian relief missions all over the world while putting their own lives at risk. Since 9/11, 50 of our Airmen have received Distinguish Flying Crosses, 34 earned Purple Hearts, and 25 made the ultimate sacrifice so that others may live.

Today, Air Force Rescue Forces remain fully engaged in Personnel Recovery efforts across the globe. From supporting operations in Africa, Iraq, Syria, and Afghanistan to performing civilian search and rescue operations off the coast of Alaska, no one does rescue better than the United States Air Force. The FY17 President's Budget request fully supports this core capability by continuing to fund the new Combat Rescue Helicopter and improving aircraft availability and survivability issues for our legacy HH-60G fleet.

The Air Force's primary means of accomplishing the rescue mission, the HH-60G Pave Hawk, is a low supply/high demand asset. The fleet contains only 97 of the original 112 aircraft program of record, of which 37 had to undergo unscheduled depot maintenance in 2015 and 50 of the 97 have received combat damage since 2001. The $91.4M requested in the FY17 PB continues modernizing the HH-60G fleet to preserve our high end rescue capability. Most of

these funds will be used to install Operational Loss Replacement (OLR) kits and for the Degraded Visual Environment (DVE) FY17 new start modification.

Aircraft availability remains a top concern for Air Force Personnel Recovery leadership. Ongoing modification programs are keeping the HH-60G a viable Combat Search and Rescue (CSAR) weapon system until the Air Force's replacement program is complete. The modifications address sustainment issues, safety features, defensive systems, and avionics upgrades that enable the HH-60G to continue safe and effective operations in a joint/multi-national environment under austere combat conditions.

Aircraft survivability is also at the top of our priority list. The HH-60G is currently equipped with infrared/radar missile warning systems and countermeasure dispensers. In FY16, with help from the Navy, the Air Force is initiating a program to update the onboard sensors on our deployed aircraft to address the evolving threats of the combat environment.

Another survivability concern of our HH-60G fleet is operating in degraded visual environments. As mentioned previously, in FY17 the Air Force will procure, as the DVE mod, a new sensor to enhance the situational awareness of pilots by providing a digitized picture of the landing zone in the cockpit. This sensor will greatly minimize the hazards of degraded environments to prevent mishaps and the loss of lives.

The HH-60 OLR program, also previously referenced, is a short-term fix to address current availability issues and provide combat capable aircraft to the warfighter. This program upgrades 21 Army UH-60L aircraft into the current Air Force HH-60G configuration to replace operational losses and address obsolescence issues. All 21 kits for OLR have been procured and installations will begin later this year.

The Combat Rescue Helicopter (CRH) program will replace the aging HH-60G fleet with 112 air vehicles, training systems, and support equipment. Despite delays to program initiation due to internal portfolio trades caused by the Budget Control Act and thanks to continued Congressional support, CRH is fully funded and remains on schedule to meet Initial Operational

Capability in FY21. The FY17 PB requests $319.3M to continue CRH development efforts and rephases funding in future years from previously projected requirements to properly align funding for execution. Recent accomplishments include setting the functional baseline by successfully completing the Systems Requirements Review and the System Functional Review for both the air vehicle and training systems, held in April and July of 2015 respectively. The next major program milestones are the air vehicle Preliminary Design Review (PDR) in April 2016, followed by the training systems PDR later this year.

Nuclear Security and Continuity of Government (UH-1N)

The UH-1N "Huey" is a versatile helicopter whose service in our Air Force has spanned five decades. Entering the USAF inventory in 1970 to provide search and rescue capabilities, the UH-1N mission set has expanded and transformed over the years to include nuclear missile field security support, National Capital Region (NCR) continuity of government/continuity of operations (COG/COOP), operational support airlift, test range support, and aircrew survival, evasion, resistance, and escape (SERE) training. The Air Force's 62 UH-1N helicopters are assigned at bases in Maryland, Wyoming, Montana, North Dakota, Washington, New Mexico, and Japan.

The primary missions for the UH-1N are nuclear missile field security support and NCR COG/COOP. The nuclear security support mission includes emergency security response and nuclear convoy support operations. During an emergency security response mission, ICBM security helicopters are expected to provide timely transport of tactical response forces to defend, secure, and/or protect an intercontinental ballistic missile (ICBM) launch facility. Once at the site, security helicopters insert, provide surveillance, and provide communications support for tactical response forces, potentially in a hostile environment. For nuclear convoy support missions, these helicopters will provide armed overwatch for the ground convoy and the ability to insert a tactical response force if necessary to ensure the safety and security of the nuclear convoy.

The UH-1N also provides the Federal Government COG/COOP support. These missions include a 24/7 rapid response alert force, senior leader airlift within the NCR, local area search and rescue/medical evacuation, and Defense Support of Civil Authorities.

The UH-1N Replacement program builds on the requirements developed for the Common Vertical Lift Support Platform, which was cancelled in the FY13 PB due internal portfolio trades caused by the Budget Control Act funding reductions. However, we can no longer delay replacement of these helicopters. Upon enactment of the 2016 Defense Authorization and Appropriations Bills, the Air Force initiated the UH-1N Replacement program to replace the current fleet with a non-developmental, off-the-shelf helicopter that will close current operational capability gaps and provide improved payload capacity, airspeed, range, endurance, and survivability capabilities. The FY17 PB, which requests $14.1M in development and $18.3M in procurement funds, reflects the Air Force's commitment to this critical program. We are requesting sufficient funding to accelerate the procurement and fielding of new helicopters to support urgent needs to enhance the security posture in our ICBM fields. The projected funding requirements in FY16 and FY17 are both predicated on a full and open competition to replace the entire UH-1N fleet. The Air Force is currently examining potential acquisition approaches for the program, with nuclear security support mission as our top priority. Approval of the final program acquisition strategy is expected by April/May of 2016, after which we will have a more precise understanding of our future funding requirements.

As we work to replace the UH-1N, we are concurrently taking steps to ensure the existing UH-1N fleet can provide the best possible support to our using commands. We are installing night vision compatible cockpits to enable full spectrum operations and crashworthy seats to enhance the safety of our flight crews. Additionally, upgrades to UH-1N training systems are underway to decrease the wear and tear on our existing UH-1Ns while ensuring a high state of readiness, particularly for the NCR COG/COOP mission.

In conjunction with the UH-1N Replacement program, the Air Force has implemented a number of materiel and non-materiel risk mitigation efforts to further reduce the operational risks associated with nuclear missile field security and COG/COOP support. Though the nature and

effectiveness of these efforts cannot be openly discussed, they further reflect the Air Force's investment to secure our ICBM forces in the face of an ever-changing threat environment.

Special Operations (CV-22)

Air Force Special Operations Command (AFSOC) uses the CV-22 Osprey's long range, speed, and vertical take-off and landing (VTOL) abilities to provide special operations warfighters with specialized air mobility. The CV-22 has consistently demonstrated its worldwide deployability and combat effectiveness in support of OEF, OIF, and many other contingencies around the globe. The current CV-22 fleet consists of 46 aircraft, with an additional four aircraft in production and scheduled for delivery later this calendar year. Consistent with projected requirements in FY16, the FY17 PB requests $16.7M in development and $64.3M in procurement funds to continue efforts to improve the CV-22 fleet. CV-22 is fully funded and has been protected from adverse impacts caused by the Budget Control Act. The attrition reserve aircraft added by Congress in the FY16 Appropriations Bill will be put on contract in June 2016 and will likely deliver in the 1Q/FY20 timeframe, bringing the total fleet inventory to 51 aircraft.

Concurrent with aircraft production, the joint V-22 Program Office is developing improvements to the CV-22's operational capabilities and is focused on improving the aircraft's reliability and availability. Particular emphasis is placed on improving the CV-22's engine time-on-wing metric, where development efforts will address sand, dirt, and other foreign object ingestion problems that severely degrade engine performance and necessitate costly engine removals and repairs.

Improvements to the CV-22 are being made in block increments and each block includes a number of modification upgrades installed as they become available. Block B/10 retrofit modifications brought the oldest CV-22s to a common baseline configuration. The on-going Block C/20 modification program is retrofitting CV-22s with modifications that improve operational safety, suitability, and effectiveness, correct deficiencies identified in testing and operations, enhance self-deployment capabilities, and improve overall aircraft reliability and

availability. Future modifications and improvements to the CV-22 will further improve operational effectiveness and suitability, while mitigating the growth in aircraft operations and support costs. The CV-22 will be the focal point in AFSOC's long range VTOL capability for many years to come.

Air Force Science & Technology (S&T)

To address near-term rotorcraft propulsion needs, the Army started the Improved Turbine Engine Program (ITEP) to provide increased engine performance, operability, and affordability in current rotorcraft such as the H-60 Black Hawk. Army S&T supports ITEP through Advanced Affordable Turbine Engine (AATE), which is a program under the VAATE consortium to validate new engine technologies to achieve ITEP goals. The Air Force participates in VAATE and supports AATE by providing technical subject matter expertise and test facilities as needed.

The Air Force S&T community has assisted the Army in the past in overcoming operational rotorcraft challenges. Eighty percent of helicopter mishaps are due to non-hostile action from Degraded Visual Environments (DVE), Controlled Flight Into Terrain (CFIT), wire/object strike, dynamic rollover, or hard landing. The Three-Dimensional Landing Zone Joint Capabilities Technology Demonstration (JCTD) program successfully demonstrated an integrated capability to mitigate these hazards, culminating in a successful flight test using an U.S. Army EH-60L Black Hawk helicopter in operationally realistic conditions at Yuma Proving Ground Arizona.

This JCTD integrated both Air Force Research Laboratory (AFRL) and U.S. Army Aeroflightdynamics Directorate's (AFDD) technologies into a high-resolution three-dimensional imagine Laser Detection And Ranging (LADAR) system. First, the AFRL-developed LADAR provides imagery of a landing zone while highlighting hazards to provide a persistent image for decision-making on approach and landing during brownout. The imagery is coupled with the AFDD Integrated Cueing Environment providing symbology and landing guidance enabling pilots to perform visual quality landings. Second, the LADAR detects and highlight obstacles such as wires and poles enroute. Third, the real-time LADAR data are fused with a static

geographic database to enable a Helicopter Terrain Awareness and Warning System to prevent CFIT.

Since the conclusion of the JCTD in 2014, the Air Force has continued to refine the LADAR technologies necessary to enable more flexibility for helicopter installation, to include integration in a modified AN/AAQ-29 FLIR turret for the Air Force HH-60G Pave Hawk Combat Search and Rescue helicopter. The AN/AAQ-29 compatible LADAR will be flown at Yuma Proving Ground in April 2016.

The Air Force S&T program developed the Multi-Function LADAR which was used as the test unit during the JCTD flight tests, provided simulation and aircrew training along with landing guidance development, and sponsored the development of a distributed architecture LADAR which was critical to reducing the weight and volume of the LADAR components to be placed on the nose of the helicopter.

Closing

Although the Budget Control Act forced us to reassess the timing of the CRH and UH-1N modernization efforts, the FY17 PB reflects the Air Force's commitment to sustaining, modernizing, and recapitalizing our rotorcraft fleets. We will continue to modernize our HH-60G and CV-22 fleets and continue to press forward to purchase CRH and the UH-1N Replacement. These platforms are required to accomplish the critical combat search and rescue, nuclear security, continuity of government, helicopter training, and special operations missions. We look forward to working closely with the committee to ensure the ability to deliver rotorcraft air power for America when and where we are needed.