

**UNCLASSIFIED**

PE NUMBER: 0603601F

PE TITLE: Conventional Weapons Technology

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2007</b>
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<b>BUDGET ACTIVITY</b> <b>03 Advanced Technology Development (ATD)</b>	<b>PE NUMBER AND TITLE</b> <b>0603601F Conventional Weapons Technology</b>
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Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	35.916	38.512	16.904	13.794	22.140	21.606	19.153	18.929	Continuing	TBD
670A Conventional Weapons Development	35.916	38.512	16.904	13.794	22.140	21.606	19.153	18.929	Continuing	TBD

Note: In FY 2006, the efforts covered under Project 670B were moved to Project 670A.

**(U) A. Mission Description and Budget Item Justification**

This program develops, demonstrates, and integrates ordnance and advanced guidance technologies for air-launched conventional weapons. The program includes development of conventional ordnance technologies including warheads, fuzes, and explosives; and development of advanced guidance technologies including seekers, navigation and control, and guidance. Note: In FY 2007, Congress added \$2.0 million for Falcon Eye Seeker; \$1.4 million for Micro-Sized Air-Launched Atmospheric Visibility Sensor; \$1.4 million for Air Force Special Ops Innovative Miniature Infrared Camera; \$3.2 million for the Clandestine Electric Reconnaissance Vehicle (CERV) for AFSOC; \$1.4 million for the Ground Mobile Gateway System; \$3.6 million for Under Vehicle Mobile Inspection; \$3.2 million for Next Generation Fixed Wing S-3B Heavy Aerial Firefighting Tanker; \$1.4 million for UAV Sensor Interface and Payloads for Targeting; and \$1.4 million for Weapons Data Link. This program is in the Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

**(U) B. Program Change Summary (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	30.519	19.658	19.993	21.504
(U) Current PBR/President's Budget	35.916	38.512	16.904	13.794
(U) Total Adjustments	5.397			
(U) Congressional Program Reductions				
Congressional Rescissions	0.023	-0.146		
Congressional Increases		20.400		
Reprogrammings	5.917	-1.400		
SBIR/STTR Transfer	-0.543			

**(U) Significant Program Changes:**

Not Applicable.

**C. Performance Metrics**

(U) Under Development.

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2007**

BUDGET ACTIVITY <b>03 Advanced Technology Development (ATD)</b>				PE NUMBER AND TITLE <b>0603601F Conventional Weapons Technology</b>				PROJECT NUMBER AND TITLE <b>670A Conventional Weapons Development</b>		
Cost (\$ in Millions)	FY 2006 Actual	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
670A Conventional Weapons Development	35.916	38.512	16.904	13.794	22.140	21.606	19.153	18.929	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

This program develops, demonstrates, and integrates ordnance and advanced guidance technologies for air-launched conventional weapons. The program includes development of conventional ordnance technologies including warheads, fuzes, and explosives; and development of advanced guidance technologies including seekers, navigation and control, and guidance. Note: In FY 2007, Congress added \$2.0 million for Falcon Eye Seeker; \$1.4 million for Micro-Sized Air-Launched Atmospheric Visibility Sensor; \$1.4 million for Air Force Special Ops Innovative Miniature Infrared Camera; \$3.2 million for the Clandestine Electric Reconnaissance Vehicle (CERV) for AFSOC; \$1.4 million for the Ground Mobile Gateway System; \$3.6 million for Under Vehicle Mobile Inspection; \$3.2 million for Next Generation Fixed Wing S-3B Heavy Aerial Firefighting Tanker; \$1.4 million for UAV Sensor Interface and Payloads for Targeting; and \$1.4 million for Weapons Data Link. This program is in the Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing system upgrades and/or new system developments that have military utility and address warfighter needs.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MAJOR THRUST: Develop and demonstrate advanced air-delivered munitions fuze and mass-focusing warhead technologies to improve munition effectiveness, allowing for smaller warheads and munition airframes, thereby improving sortie effectiveness and increasing strike aircraft load-outs. Develop a fuzing capability that will transmit function data from penetrating weapons through various hard target mediums. Note: In FY 2007, funding will be reduced as fuze efforts go to a single demonstration.	4.055	3.768	3.399	3.442
(U) In FY 2006: Designed a hard target influence fuze capable of denying hard and deeply buried facilities access. Developed fuzes that can transmit bomb damage information to an aircraft platform.				
(U) In FY 2007: Continue designing a hard target influence fuze capable of denying hard and deeply buried facilities access. Complete developing fuzes that can transmit bomb damage information to an aircraft platform.				
(U) In FY 2008: Complete initial phase of hard target influence fuze development and testing. Begin developing an active imaging target device that can provide warhead aimpoint selection for mass focused warheads.				
(U) In FY 2009: Continue developing an active imaging target device that can provide warhead aimpoint selection for mass focused warheads.				
(U) MAJOR THRUST: Develop and demonstrate conventional munition subsystem and platform	1.875	0.241	0.312	1.400

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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<p>(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b></p> <p>integration technologies to include innovative air-delivered munition carriage and release equipment, miniature weapon release concepts, and reduced airframe size providing the capability to safely carry, launch, and communicate with the aerospace vehicle and other multiple miniature weapons. These integration technologies will increase weapon load-outs and improve sortie effectiveness for current and future strike aircraft, while reducing munition airlift requirements.</p>				
<p>(U) In FY 2006: Integrated a miniaturized datalink into a weapon system to perform retargeting in-flight. Planned a datalink flight demonstration. Planned a low-cost miniature cruise missile demonstration. Planned a miniature persistent munition demonstration that will provide area dominance with a multiple-shot capability.</p>				
<p>(U) In FY 2007: Complete a miniaturized datalink flight demonstration. Enhance plans and begin design of a low-cost miniature cruise missile. Mature plans and begin design of a miniature persistent munition that will provide area dominance with a multiple-shot capability. Note: Datalink flight test will be conducted in the navigation and control technologies activity in this project.</p>				
<p>(U) In FY 2008: Begin development of a small powered short-range precision-guided submunition capable of attacking multiple moving targets.</p>				
<p>(U) In FY 2009: Develop a small powered short-range precision-guided submunition capable of attacking multiple moving targets. Begin developing a missile with the capability to defeat a broad range of small and highly agile air targets as well as high value ground targets, such as enemy air defenses.</p>				
<p>(U) MAJOR THRUST: Develop and demonstrate advanced conventional armament warhead technologies, including heavy metal liners, dense metal cases, and insensitive explosives with increased energy release performance attributes. The goal of these efforts is to destroy hardened targets by more effectively penetrating protective surfaces and by enhancing kill mechanisms against softer surface targets.</p>	14.068	6.751	7.063	3.433
<p>(U) In FY 2006: Improved insensitive explosive warhead fills with a goal to significantly reduce the fill volume completing the intended ordnance mission. Developed an ordnance package to significantly improve counter-air lethality against cruise missiles and manned aircraft. Designed a multi-mode warhead package designed for precision-guided submunitions. Developed a weapon system capable of dispensing payloads within a target for counterforce applications. Test and develop an ordnance package designed for low collateral damage and minimum far-field lethality.</p>				
<p>(U) In FY 2007: Complete insensitive explosive warhead fills that significantly reduce fill volume requirements. Continue developing an ordnance package that will significantly improve counter air</p>				

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	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
<p>(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b></p> <p>lethality against cruise missiles and manned aircraft. Develop and test systems needed for an ordnance package with low collateral damage and minimum far-field lethality. Continue developing a multi-mode warhead package designed for precision-guided submunitions. Continue developing a weapon system capable of dispensing payloads within a target for counterforce applications.</p>				
<p>(U) In FY 2008: Extend development of an ordnance package with improved counter-air lethality to address cruise missile and urban targets, as well as attacking a subset of ground targets to include enemy air defenses. Continue developing a multi-mode warhead package designed for precision guided submunitions.</p>				
<p>(U) In FY 2009: Demonstrate of an ordnance package with improved counter-air lethality to address cruise missile and counter-air targets, as well as attacking a subset of ground targets to include enemy air defenses. Demonstrate a multi-mode warhead package designed for precision guided submunitions.</p>				
<p>(U) MAJOR THRUST: Develop and demonstrate advanced conventional armament seeker technologies for miniature munitions applications. These seeker technologies will autonomously detect, acquire, and guide to targets of interest in adverse weather and battlefield conditions. Also, the seeker technologies will increase the probability of kill and minimize collateral damage, while providing increased weapons load-out and improved sortie effectiveness. Note: In FY 2006 and prior, these efforts were covered under Project 670B in this Program Element. In FY 2007, the Miniature Navigator Demonstration (in another thrust in this project) will be completed allowing seekers for two different munition concepts to be initiated.</p>	0.000	7.629	6.130	5.519
<p>(U) In FY 2006: Not Applicable.</p>				
<p>(U) In FY 2007: Continue design and fabrication, and commence ground and flight test a low-cost laser detection and ranging seeker that reduces moving parts compared to earlier generation seekers. Mature plans and begin designing a small multiple-mode radar for an air to surface weapon demonstration. Develop ordnance package designed for low collateral damage and minimum far-field lethality.</p>				
<p>(U) In FY 2008: Continue design and demonstration of low cost laser detection and ranging seeker to increase data rates and reduce moving parts compared to earlier generation laser seeker technologies. Develop a multi-mode radar seeker capable of engaging both moving and stationary targets in adverse weather.</p>				
<p>(U) In FY 2009: Continue design and demonstration of a low cost laser detection ordnance seeker to increase data rates and LADAR moving parts compared to earlier generation LADAR seeker</p>				

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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
(U) technologies. Flight test a multi-mode radar seeker capable of engaging both moving and stationary targets in adverse weather.					
(U) MAJOR THRUST: Develop and demonstrate advanced conventional armament navigation and control technologies to increase armament navigation accuracy, improve stand off range, and enhance weapons control and operation in electronic jamming environments. Note: Prior to FY 2006, these efforts were covered under Project 670B in this Program Element. In FY 2007, the Miniature Navigator Demonstration will be completed allowing seekers for two different munition concepts to be initiated (in another thrust in this project).	5.664	1.626	0.000	0.000	
(U) In FY 2006: Developed and demonstrated a munition navigation system that provides accurate (less than a meter), miniature (less than 25 cubic inch), and affordable (less than \$6000 per unit) global positioning management system. Developed a capability for weapons to datalink information to a communications grid.					
(U) In FY 2007: Complete design and fabrication of a weapon datalink and integrate datalink into a guided munition for commencement of flight testing.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U) CONGRESSIONAL ADD: High Speed Strike Weapon.	2.805	0.000	0.000	0.000	
(U) In FY 2006: Conducted Congressionally-directed effort for High Speed Strike Weapon.					
(U) In FY 2007: Not Applicable.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U) CONGRESSIONAL ADD: Fuze Air-to-Surface Technology (FAST).	0.967	0.000	0.000	0.000	
(U) In FY 2006: Conducted Congressionally-directed effort for FAST.					
(U) In FY 2007: Not Applicable.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U) CONGRESSIONAL ADD: Internet Protocol (IP) Targeting Extension System.	0.967	0.000	0.000	0.000	

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<b>(U) B. Accomplishments/Planned Program (\$ in Millions)</b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	
(U) In FY 2006: Conducted Congressionally-directed effort for IP Targeting Extension System.					
(U) In FY 2007: Not Applicable.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U)					
(U) CONGRESSIONAL ADD: Plug and Play Capability for Air-Launched Weapons.	0.967	0.000	0.000	0.000	
(U) In FY 2006: Conducted Congressionally-directed effort for Plug and Play Capability for Air-Launched Weapons.					
(U) In FY 2007: Not Applicable.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U)					
(U) CONGRESSIONAL ADD: Air Force Special Ops Innovative Miniature Infrared Camera.	1.258	1.363	0.000	0.000	
(U) In FY 2006: Conducted Congressionally-directed effort for Air Force Special Ops Innovative Miniature Infrared Camera.					
(U) In FY 2007: Conduct Congressionally-directed effort for Air Force Special Ops Innovative Miniature Infrared Camera.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U)					
(U) CONGRESSIONAL ADD: Clandestine Electric Reconnaissance Vehicle (CERV) for Air Force Special Operations Command (AFSOC).	1.645	3.116	0.000	0.000	
(U) In FY 2006: Conducted Congressionally-directed effort for CERV for AFSOC.					
(U) In FY 2007: Conduct Congressionally-directed effort for CERV for AFSOC.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U)					
(U) CONGRESSIONAL ADD: Micro-Sized Air-Launched Atmospheric Visibility Sensor.	1.645	1.363	0.000	0.000	
(U) In FY 2006: Conducted Congressionally-directed effort for Micro-Sized Air-Launched Atmospheric Visibility Sensor.					
(U) In FY 2007: Conduct Congressionally-directed effort for Micro-Sized Air-Launched Atmospheric					

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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>		<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Visibility Sensor.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U)					
(U) CONGRESSIONAL ADD: Falcon Eye Seeker		0.000	1.947	0.000	0.000
(U) In FY 2006: Not Applicable.					
(U) In FY 2007: Conduct Congressionally-directed effort for Falcon Eye Seeker.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U)					
(U) CONGRESSIONAL ADD: Ground Mobile Gateway System.		0.000	1.363	0.000	0.000
(U) In FY 2006: Not Applicable.					
(U) In FY 2007: Conduct Congressionally-directed effort for Ground Mobile Gateway System.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U)					
(U) CONGRESSIONAL ADD: Under Vehicle Mobile Inspection.		0.000	3.503	0.000	0.000
(U) In FY 2006: Not Applicable.					
(U) In FY 2007: Conduct Congressionally-directed effort for Under Vehicle Mobile inspection System.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U)					
(U) CONGRESSIONAL ADD: Next Generation Fixed Wing S-3B Heavy Aerial Firefighting Tanker		0.000	3.116	0.000	0.000
(U) In FY 2006: Not Applicable.					
(U) In FY 2007: Conduct Congressionally-directed effort for Next Generation Fixed Wing S-3B Heavy Aerial Firefighting Tanker.					
(U) In FY 2008: Not Applicable.					
(U) In FY 2009: Not Applicable.					
(U)					
(U) CONGRESSIONAL ADD: Unmanned Air Vehicle (UAV) Sensor Interface and Payloads for Targeting.		0.000	1.363	0.000	0.000

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<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Conduct Congressionally-directed effort for UAV Sensor Interface and Payloads for Targeting.				
(U) In FY 2008: Not Applicable.				
(U) In FY 2009: Not Applicable.				
(U) CONGRESSIONAL ADD: Weapons Data Link.	0.000	1.363	0.000	0.000
(U) In FY 2006: Not Applicable.				
(U) In FY 2007: Conduct Congressionally-directed effort for Weapons Data Link.				
(U) In FY 2008: Not Applicable.				
(U) In FY 2009: Not Applicable.				
(U) Total Cost	35.916	38.512	16.904	13.794

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) Related Activities:										
(U) PE 0602602F, Conventional Munitions.										
(U) This project has been coordinated through the Reliance 21 process to harmonize efforts and eliminate duplication.										
(U) <b><u>D. Acquisition Strategy</u></b>										
Not Applicable.										