

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE MAY 2009																																								
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7			R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160403BB Special Operations Aviation Systems Advanced Development/Project SF100																																											
COST (Dollars in Millions)	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	Cost to Complete	Total Cost																																				
PE1160403BB	60.687	43.856	82.621						Cont.	Cont.																																				
SF100, Special Operations Aviation Systems Advanced Development	60.687	43.856	82.621						Cont.	Cont.																																				
<p>A. Mission Description and Budget Item Justification: This program element provides for the development, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: low probability of intercept/low probability of detection, terrain following/terrain avoidance radar; Precision Strike Package MC-130 Multi-Mission Modification; digital terrain elevation data and electronic order of battle; digital maps; enhanced situational awareness; near-real-time intelligence to include data fusion, threat detection and avoidance; electronic support measures for threat geo location and specific emitter identification; navigation, target detection, evaluation of iridium and global positioning technologies, and identification technologies; and aerial refueling.</p> <p>B. Program Change Summary:</p> <table border="0"> <thead> <tr> <th></th> <th>FY08</th> <th>FY09</th> <th>FY10</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td>55.451</td> <td>43.977</td> <td>41.033</td> </tr> <tr> <td>Current President's Budget</td> <td>60.687</td> <td>43.856</td> <td>82.621</td> </tr> <tr> <td>Total Adjustments</td> <td>5.236</td> <td>-0.121</td> <td>41.588</td> </tr> <tr> <td> Congressional Program Reductions</td> <td></td> <td>-0.121</td> <td></td> </tr> <tr> <td> Congressional Increases</td> <td></td> <td></td> <td></td> </tr> <tr> <td> Reprogrammings</td> <td>5.556</td> <td></td> <td></td> </tr> <tr> <td> Other Program Adjustments</td> <td></td> <td></td> <td>41.588</td> </tr> <tr> <td> SBIR Transfer</td> <td>-0.320</td> <td></td> <td></td> </tr> </tbody> </table>												FY08	FY09	FY10	Previous President's Budget	55.451	43.977	41.033	Current President's Budget	60.687	43.856	82.621	Total Adjustments	5.236	-0.121	41.588	Congressional Program Reductions		-0.121		Congressional Increases				Reprogrammings	5.556			Other Program Adjustments			41.588	SBIR Transfer	-0.320		
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE MAY 2009
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160403BB Special Operations Aviation Systems Advanced Development/Project SF100	
<p>Funding:</p> <p>FY08: Net increase of \$5.236 million is due to funds being reprogrammed PE's 1160404BB (\$2.000 million), PE 1160425BB (\$1.032 million) and PE 1160429BB (\$2.524 million) for aviation engineering analyses, and an adjustment of to the Small Business Innovative Research account (-\$0.320 million).</p> <p>FY09: Decrease of -\$0.121 million is due to Section 8101 reduction (-\$0.121 million).</p> <p>FY10: Net increase of \$41.588 million is due to funding for development and integration of SOF C-130 Avionics Modifications (\$2.029 million), a Precision Strike Package MC-130 Multi-Mission Modification (\$27.262 million), realignment to proper PE for execution (-\$3.445 million), realignment to higher command priorities (-\$0.666 million), and decrease for economic assumptions (-\$1.592 million).</p> <p>Schedule: None.</p> <p>Technical: None.</p>		

Exhibit R-2a, RDT&E Project Justification		Date: MAY 2009
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

Cost (\$ in millions)	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Aviation Systems Advance Development	60.687	43.856	82.621					
RDT&E Articles Quantity								

A. Mission Description and Budget Item Justification: This project provides for the investigation, evaluation, demonstration, and integration of current and maturing technologies for Special Operations Forces (SOF)-unique aviation requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: low probability of intercept/low probability of detection (LPI/LPD); terrain following/terrain avoidance (TF/TA) radar; Precision Strike Package MC-130 Multi-Mission Modification; digital terrain elevation data and electronic order of battle; digital maps; enhanced situational awareness; near-real-time intelligence to include data fusion, threat detection and avoidance; electronic support measures for threat geo- location and specific emitter identification; navigation, target detection and identification technologies; and aerial refueling.

- SOF C-130 Avionics Modifications. Provides for development necessary to maintain current SOF-unique capabilities for SOF aircraft in U.S. Air Force Avionics Modernization Program.
- EC-130J Commando Solo Upgrades. Provides for integration of SOF-unique implementation of the C-130J block cycle upgrade as installed on the EC-130J Commando Solo aircraft.
- Iridium-Global Positioning System (I-GPS). Conducts a proof of concept study of I-GPS to evaluate the capability to provide handsets capable of using signals from iridium and global positioning system satellites to provide anti-jam, positioning, and timing accuracy capabilities.
- Aviation Engineering Analysis. Provides a rapid response capability to support SOF fixed wing aircraft and unmanned aircraft systems. The purpose is to correct system deficiencies, improve asset life, and enhance mission capability through the means of feasibility studies, analysis of alternatives, pre-developmental risk reduction studies, and engineering analyses. This sub-project provides the engineering required to improve the design and performance integrity of the aircraft support systems, sub-systems, equipment, and embedded computer software as they relate to the maintenance, overhaul, repair, quality assurance, modifications, materiel improvements, and service life extensions. Conducts risk reduction studies, analyses, and demonstrations to support emerging, time critical weapons and sensor enhancements. **Note: A new Program Element and Project SF101 were created for Aviation Engineering Analysis in Budget Activity 3. The resources moved beginning in FY 2010.**

Exhibit R-2a, RDT&E Project Justification		Date: MAY 2009
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

- Acquisition Development Support. This funding is required to support systems engineering, analysis, and integration. Primary use of funds is to examine commonality and interoperability across systems. Funding will be used in a multitude of avenues across systems to support cost-benefit analysis; provide additional test support; and further reduce cost, schedule, and technical risk. As required, funds will support manpower costs for experts needed to meet certification, safety, reliability, and other requirements required by Office of the Secretary of Defense, Acquisition, Technology and Logistics, as well as commitments for joint programs.
- Precision Strike Package MC-130 Multi-Mission Modification. This program fulfills an urgent combat requirement to rapidly arm and field multi-mission precision strike platforms. Provides an armed over-watch capability including sensors, communication systems, precision guided munitions, and a single medium-caliber gun. An interim kit is being fielded and funded under a Combat Mission Needs Statement in FY 2009.

B. Accomplishments/Planned Program

	FY08	FY09	FY10	FY11
SOF C-130 Avionics Modifications			20.029	
RDT&E Articles Quantity				
FY10 Initiate development and integration of aircraft modifications to maintain SOF-unique capabilities.				
	FY08	FY09	FY10	FY11
EC-130J Commando Solo Upgrades		0.486	0.978	
RDT&E Articles Quantity				
FY09 Initiates integration of SOF-unique implementation of the C-130J Block Cycle 7.0 Upgrade as installed on the EC-130J Commando Solo aircraft.				
FY10 Continue development and integration of SOF-unique implementation of the C-130J Block Cycle 7.0 Upgrade as installed on the EC-130J Commando Solo aircraft.				

Exhibit R-2a, RDT&E Project Justification		Date: MAY 2009
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

	FY08	FY09	FY10	FY11
Iridium-Global Positioning System (I-GPS)	9.680			
RDT&E Articles Quantity				
FY08 Conducted a proof of concept study of I-GPS to evaluate the capability to provide handsets capable of using signals from iridium and global positioning system satellites to provide anti-jam, positioning, and timing accuracy capabilities.				
	FY08	FY09	FY10	FY11
Aviation Engineering Analysis	7.134	5.365		
RDT&E Articles Quantity				
FY08 Continued engineering studies and analyses for Fixed Wing aviation SOF-unique equipment and missions. FY09 Continues engineering studies and analyses for Fixed Wing aviation SOF-unique equipment and missions. Conduct risk reduction studies, analyses, and demonstrations to support AC-XX concepts.				
	FY08	FY09	FY10	FY11
Acquisition Development Support			0.409	
RDT&E Articles Quantity				
FY10 Conduct engineering, analysis and integration support across a multitude of systems to examine commonality and interoperability across systems, to support cost-benefit analyses, to provide additional test support, and to further reduce cost, schedule, and technical risk.				
	FY08	FY09	FY10	FY11
Precision Strike Package MC-130 Multi-Mission Modification			27.262	
RDT&E Articles Quantity				
FY10 Integrate and test precision strike package on an MC-130W aircraft.				

Exhibit R-2a, RDT&E Project Justification		Date: MAY 2009
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

	FY08	FY09	FY10	FY11
SOF K-band Terrain Following /Terrain Avoidance (TF/TA) Radar – Silent Knight	43.873	38.005	33.943	
RDT&E Articles Quantity				

FY08 Continued System Development and Demonstration (SDD) of SOF common K-Band TF/TA radar. Continued hardware and software design and integration and refinement of developmental test plans for MH-47G platform.

FY09 Continues SDD of SOF common K-Band TF/TA radar. Continue hardware and software design and integration and refinement of developmental test plans for MH-47G platform.

FY10 Continue SDD of SOF common K-Band TF/TA radar. Continue hardware and software design integration and documentation. Begin developmental contractor flight testing and MH-47G kit build.

C. Other Program Funding Summary:

	<u>FY08</u>	<u>FY09</u>	<u>FY10</u>	<u>FY11</u>	<u>FY12</u>	<u>FY13</u>	<u>FY14</u>	<u>FY15</u>	To <u>Complete</u>	Total <u>Cost</u>
Proc, C130 Mods										
EC-130 Modifications		0.988							Cont.	Cont.
Precision Strike Package			31.625						Cont.	Cont.

D. Acquisition Strategy :

- SOF C-130 Avionics Modifications. Restoration and integration of existing SOF-unique capabilities will be developed under the USAF C-130 Avionics Modernization Program.
- EC-130J Commando Solo Upgrades. Provide SOF-unique funding in support of ongoing C-130J block modification program in conjunction with other C-130J users.
- Acquisition Development Support. Conduct engineering, analysis and integration support across a multitude of systems to examine commonality and interoperability issues to ensure cost, schedule and technical issues are addressed.

Exhibit R-2a, RDT&E Project Justification		Date: MAY 2009
Appropriation/Budget Activity RDT&E BA # 7	Aviation Systems Advance Development/Project SF100	

- Precision Strike Package MC-130 Multi-Mission Modifications. Provides incremental acquisition strategy with integration and testing for offensive systems, sensors, and mission management.
- Terrain Following/Terrain Avoidance Radar (Silent Knight). Incremental acquisition strategy with the MH-47G as the lead platform. A competitive SDD contract with an option for six low-rate initial production (LRIP) units was awarded to Raytheon in FY 2007. A follow-on radar production contract using LRIP price points will be awarded. MH-47G installation and follow-on platform group A design and integration efforts will be competitively awarded.

Exhibit R-3 RDT&E Project Cost Analysis

DATE: MAY 2009

APPROPRIATION / BUDGET ACTIVITY Special Operations Aviation Systems Advanced Development/PE1160403BB
 RDT&E DEFENSE-WIDE / 7 Aviation Systems Advance Development/SF100

Actual or Budget Value (\$ in millions)

Cost Categories (Tailor to WBS, or System/ Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY09	Award Date FY09	Budget Cost FY10	Award Date FY10	Budget Cost FY11	Award Date FY11	To Complete	Total Program
Primary Hardware Development											
SOF C-130 Avionics Modification	TBD	TBD				17.814	Dec-09			Cont.	Cont.
EC-130J Block Cycle Engineering	TBD	TBD	0.642	0.486	Jan-09	0.978	Dec-09			Cont.	Cont.
Precision Strike Package	TBD	Various				23.962	Jan-10			Cont.	Cont.
Terrain Following/Terrain Avoidance (TF/TA) Radar Risk Reduction	CPIF	Raytheon, McKinney TX and Northrop Grumman, Baltimore, MD	8.042								8.042
TF/TA Radar System Design & Dev	CPIF	Raytheon, Dallas TX	28.676								28.676
MH-47 Prime Mission Product	CPIF	Raytheon	31.993	26.328	Dec-08	17.118	Dec-09			Cont.	Cont.
MH-47 Engineering	CPIF	Raytheon	5.789	4.203	Dec-08	3.273	Dec-09			Cont.	Cont.
Subtotal Product Dev			75.142	31.017		63.145				Cont.	Cont.

Remarks:

Support Costs											
Iridium-Global Positioning System Engineering/Studies	CPFF	Naval Research Lab, Washington, DC	9.680								9.680
Aviation Engineering Analysis	Various	Various	62.899	5.365	Various						68.264
Acquisition Development Support	Various	Various				0.409	Mar-10				0.409
Precision Strike Package	TBD	Various				0.500	Jan-10			Cont.	Cont.
Subtotal Spt			72.579	5.365		0.909				Cont.	Cont.

Remarks: Aviation Engineering Analysis moved to PE 1160422BB, Project SF101 starting in FY 2010.

Test & Evaluation (T&E)											
SOF C-130 Avionics Modification	TBD	TBD				2.215	Dec-09			Cont.	Cont.
Precision Strike Package	TBD	Various				2.300	Various			Cont.	Cont.
TF/TA Radar--MH-47	CPIF	Raytheon		2.878	Dec-08	5.606	Dec-09			Cont.	Cont.
Subtotal T&E				2.878		10.121				Cont.	Cont.

Remarks:

Exhibit R-3 RDT&E Project Cost Analysis						DATE: MAY 2009					
APPROPRIATION / BUDGET ACTIVITY				Special Operations Aviation Systems Advanced Development/PE1160403BB							
RDT&E DEFENSE-WIDE / 7				Aviation Systems Advance Development/SF100							
Actual or Budget Value (\$ in millions)											
Cost Categories (Tailor to WBS, or System/ Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost	Budget Cost FY09	Award Date FY09	Budget Cost FY10	Award Date FY10	Budget Cost FY11	Award Date FY11	To Complete	Total Program
Management Services											
Precision Strike Package	TBD	Various				0.500	Various			Cont.	Cont.
TF/TA Radar											
MH-47 Production Support	CPIF	Raytheon	6.091	4.596	Dec-08	7.946	Dec-09			Cont.	Cont.
Subtotal Management Services			6.091	4.596		8.446				Cont.	Cont.
Remarks:											
Total Cost			153.812	43.856		82.621				Cont.	Cont.
Remarks:											

Exhibit R-4, RDT&E Program Schedule Profile														Date: MAY 2009																		
Appropriation/Budget Activity RDT&E/7	Program Element Number and Name PE1160403BB/Special Operations Aviation Systems Advanced Dev														Project Number and Name SF100/Aviation System Advance Development																	
Fiscal Year	2008				2009				2010				2011				2012				2013				2014				2015			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C-130 Avionics Modification									▲	—	—	▲																				
EC-130J Commando Solo Upgrades													▲	—	—	▲																
Iridium-Global Positioning System (I-GPS)		▲	—	—	▲																											
Aviation Engineering Analysis	—	—	—	—	—	—	—	—	—	—	—	▲																				
C-130 Avionics Study	▲	—	▲		▲	—	▲																									
AC-XX Studies and Analyses		▲	—	—	—	—	—	—	—	—	—	▲																				
Acquisition Development Support													▲	—	—	▲																
Precision Strike Package MC-130 Multi-Mission Modifications													▲	—	—	▲																
System Development and Demonstration Silent Knight																																
System Design Phase				▲	—	—	—	—	—	—	—	—	—	—	—	▲																
Preliminary Design Review			▲																													
Critical Design Review							▲																									
Developmental Testing													▲	—	—	▲																

