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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 United States Special Operations Command **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY

0400: *Research, Development, Test & Evaluation, Defense-Wide*
BA 7: *Operational Systems Development*

R-1 ITEM NOMENCLATURE

PE 1160403BB: *Special Operations Aviation Systems Advanced Development*

COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	64.108	68.691	89.382	-	89.382	93.596	60.571	22.613	11.642	Continuing	Continuing
SF100: <i>SO Aviation Systems Advanced Development</i>	64.108	68.691	89.382	-	89.382	93.596	60.571	22.613	11.642	Continuing	Continuing

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: SOF specific avionics; low probability of intercept/low probability of detection, terrain following/terrain avoidance radar; Precision Strike Package for MC-130W Multi-Mission Modification, AC-130H Recapitalization, and other SOF airborne platforms; 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; digital broadcast capabilities; and aerial refueling.

B. Program Change Summary (\$ in Millions)

	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	72.308	68.691	76.041	-	76.041
Current President's Budget	64.108	68.691	89.382	-	89.382
Total Adjustments	-8.200	-	13.341	-	13.341
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-6.072	-			
• SBIR/STTR Transfer	-2.128	-			
• Other Adjustment	-	-	13.341	-	13.341

Change Summary Explanation

Funding:

FY 2010 Decrease of \$8.200 million is due to a reprogramming to higher command priorities (-\$0.894), Internal Reprogramming Request (FY 10-31 IR, dated March 2010) to support both Helicopter Cable Warning and Obstacle Avoidance System (-\$1.195 million), and EC-130J Multi-Mission Upgrades (-\$3.983 million) and a transfer of funds to Small Business Innovative Research (-\$2.128).

FY 2011 None.

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FY 2012 Net increase of \$13.341 million is due to an increase for Precision Strike Package (\$21.224 million), increase for EC-130 Upgrades (\$0.721 million), a decrease for Economic Adjustments (-\$0.294 million) and a decrease for SOF C-130 Avionics Modifications (-\$8.310 million).		

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Exhibit R-2A, RDT&E Project Justification: PB 2012 United States Special Operations Command **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
0400: Research, Development, Test & Evaluation, Defense-Wide BA 7: Operational Systems Development				PE 1160403BB: Special Operations Aviation Systems Advanced Development				SF100: SO Aviation Systems Advanced Development			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
SF100: SO Aviation Systems Advanced Development	64.108	68.691	89.382	-	89.382	93.596	60.571	22.613	11.642	Continuing	Continuing
Quantity of RDT&E Articles											

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: SOF specific avionics; low probability of intercept/low probability of detection (LPI/LPD), terrain following/terrain avoidance (TF/TA) radar; Precision Strike Package (PSP) for MC-130W Multi-Mission Modification, AC-130H replacement aircraft, and other SOF platforms; 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; digital broadcast capability; and aerial refueling.

- SOF C-130 Avionics Modifications. Provides for development necessary to maintain current SOF-unique capabilities for SOF C-130 aircraft. Includes the fit/function/interface replacement of the mission computers on the MC-130H and AC-130U aircraft due to obsolescence issues with the current AP-102 mission computer.
- 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 and development of digital broadcast capabilities.
- PSP MC-130W Multi-Mission Modification. 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 was fielded and funded under a Combat Mission Needs Statement. The MC-130W will return to its primary mobility role once PSP is fielded on the new AC-130H aircraft.
- PSP for SOF. Supports systems engineering, analysis, development, and enhancement of the baseline PSP for later integration and installation onto host MC-130J aircraft provided by the U.S. Air Force for the AC-130H replacement aircraft, as well as other SOF platforms. Missions for the AC-130H aircraft include, but are not limited to, Close Air Support (CAS), Air Interdiction, Armed Reconnaissance, Escort, and Force Protection - Integrated Base Defense. PSP is modular, scalable, and platform neutral, and includes mission management, sensors, and weapons.
- C-130 Terrain Following Radar System. Integrates a TF/TA radar with an on-board processor to provide a multi-mode terrain following capability. This system is targeted for the MC-130J, MC-130W, and MC-130H platforms.
- 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

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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.								
<ul style="list-style-type: none">SOF Common terrain following/terrain avoidance (TF/TA) (Silent Knight) Radar. Continues system design and development of a SOF common low probability of intercept/low probability of detection (LPI/LPD) radar to defeat advanced passive detection threats while maintaining ability to fly safe TF. This radar is targeted for use on all MH-47G Heavy Assault helicopters, MH-60M Blackhawk helicopters, MC-130H Combat Talon II and CV-22 Tilt-Rotor aircraft.								
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Title: SOF C-130 Avionics Modifications FY 2010 Accomplishments: Initiated development and integration of aircraft modifications to maintain SOF-unique capabilities, to include MC-130H and AC-130U mission computer replacement. FY 2011 Plans: Continues development and integration of aircraft modifications to maintain SOF-unique capabilities, which will be executed via an incremental acquisition strategy based on SOF C-130 avionics obsolescence dates, to include MC-130H and AC130U mission computer replacement. FY 2012 Base Plans: Continue development and integration of aircraft modifications to maintain SOF-unique capabilities, which will be executed via an incremental acquisition strategy based on SOF C-130 avionics obsolescence dates, to include MC-130H and AC130U mission computer replacement.				4.234	24.542	8.550	-	8.550
Title: EC-130J Commando Solo Upgrades FY 2010 Accomplishments: Continued 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. FY 2011 Plans: Develops and integrates digital broadcast capability for incorporation on EC-130J. FY 2012 Base Plans: Develop and integrate digital broadcast capability for incorporation on EC-130J.				0.949	0.581	1.782	-	1.782
Title: Precision Strike Package (PSP) MC-130W Multi-Mission Modification FY 2010 Accomplishments:				26.247	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions)					
	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Continued integration and testing for offensive systems, sensors, and mission management of the Precision Strike Package (PSP) on MC-130W aircraft.					
Title: Precision Strike Package (PSP) for SOF FY 2011 Plans: Initiates risk reduction, development and integration of the PSP on MC-130J aircraft, and continue system improvements. FY 2012 Base Plans: Continue development, integration, risk reduction, test and system improvement of the PSP on MC-130J aircraft.	-	4.279	26.193	-	26.193
Title: C-130 Terrain Following Radar System FY 2011 Plans: Initiates development and integration of the Terrain Following Radar System onto SOF MC-130 platforms. FY 2012 Base Plans: Continue development and integration of the Terrain Following Radar System onto SOF MC-130 platforms.	-	1.990	32.536	-	32.536
Title: Acquisition Development Support FY 2011 Plans: Conducts 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.	-	2.094	-	-	-
Title: SOF Common Terrain Following/Terrain Avoidance (TF/TA) (Silent Knight) Radar FY 2010 Accomplishments: Continued SOF common Engineering and Manufacturing Development (EMD) of SOF Common TF/TA radar for MH-47/60. Continued prototype integration and testing. Began developmental contractor flight testing and kit build for development/qualification flight test, platform integration, and test planning. FY 2011 Plans: Continues EMD of SOF Common TF/TA radar. Continue contractor flight testing and platform integration . Begin developmental flight testing. FY 2012 Base Plans:	32.678	35.205	20.321	-	20.321

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Continue Engineering and Manufacturing Development (EMD) of SOF Common TF/TA radar. Continue developmental flight testing.					
Accomplishments/Planned Programs Subtotals	64.108	68.691	89.382	-	89.382

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• PROC1: <i>C-130 MODIFICATIONS</i>	242.753	22.500	19.665	4.800	24.465	16.723	13.061	40.836	41.555	Continuing	Continuing
• PROC2: <i>PRECISION STRIKE PACKAGE</i>	0.000	0.000	0.000	0.000	0.000	97.194	191.928	228.463	309.826	Continuing	Continuing

D. Acquisition Strategy

- SOF C-130 Avionics Modifications. Develop a Form, Fit, Function replacement mission computer and rehost existing Operational Flight Program and Fire Control Software. Effort is being executed via an incremental acquisition strategy based on SOF C-130 avionics obsolescence mitigation need dates.
- EC-130J Commando Solo Upgrades. Block 7.0 is being procured by the Air Force program office using existing development and production contracts. Digital broadcast capabilities are being procured through an incremental acquisition strategy to incorporate readily available equipment into the EC-130J aircraft.
- Precision Strike Package (PSP) MC-130W Multi-Mission Modification. Executing incremental acquisition strategy with development, integration and testing for offensive systems, sensors, and mission management.
- PSP for SOF. Executing incremental acquisition strategy to integrate and test the PSP on MC-130J aircraft provided by the U.S. Air Force and other SOF platforms.
- C-130 Terrain Following Radar System. Award competitive engineering and manufacturing development (EMD) contract for integration and test.
- 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.
- SOF Common Terrain Following/Terrain Avoidance (Silent Knight) Radar. Executing incremental acquisition strategy with the MH-47G as the lead platform. A competitive EMD contract with an option for six low-rate initial production (LRIP) units was awarded to Raytheon in FY 2007. MH-60M group A design and integration effort was awarded in FY 2010. Follow-on platform group A design and integration efforts will be awarded. Group A production and installation contracts will be awarded. A follow-on radar production contract using LRIP price points will be awarded.

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E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 United States Special Operations Command **DATE:** February 2011

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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SOF C-130 Avionics Modifications	C/TBD	TBD:TBD	4.234	21.084	Jun 2011	8.550	May 2012	-		8.550	Continuing	Continuing	
EC-130J Commando Solo Upgrades	C/CPIF	Lockheed Martin Aero:Marietta, GA	2.076	0.581	Jun 2011	1.782	Dec 2011	-		1.782	Continuing	Continuing	
Precision Strike Package for SOF	C/TBD	TBD:TBD	-	2.786	Mar 2011	15.742	Mar 2012	-		15.742	Continuing	Continuing	
SOF Common TF/TA (Silent Knight) Radar - Prime Mission Product	C/CPIF	Raytheon:Dallas, TX	73.204	3.511	Dec 2010	0.936	Jun 2012	-		0.936	Continuing	Continuing	
SOF Common TF/TA (Silent Knight) Radar - Systems Engineering	C/CPIF	Raytheon:Dallas, TX	13.251	0.944	Feb 2011	0.935	Jun 2012	-		0.935	Continuing	Continuing	
C-130 Terrain Following Radar System	C/TBD	TBD:TBD	-	1.990	Jun 2011	32.536	May 2012	-		32.536	Continuing	Continuing	
Subtotal			92.765	30.896		60.481		-		60.481			

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Development Support	C/Various	Various:Various	-	2.094	Mar 2011	-		-		-	0.000	2.094	
Precision Strike Package for SOF	C/Various	Various:Various	-	1.493	Jun 2011	10.451	Mar 2012	-		10.451	Continuing	Continuing	
SOF C-130 Avionics Modifications	C/Various	WR-ALC/GR:Warner Robins, GA	-	3.458	Apr 2011	-		-		-	0.000	3.458	
Subtotal			-	7.045		10.451		-		10.451			

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Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 United States Special Operations Command **DATE:** February 2011

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	FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016			
	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
SOF C-130 Avionics																												
SOF C-130 Avionics Modifications																												
EC-130J Commando Solo Upgrades																												
EC-130J Commando Solo Upgrades																												
Precision Strike Package																												
Precision Strike Package MC-130W Multi-Mission Modification																												
Precision Strike Package for SOF																												
C-130 Terrain Following Radar System																												
C-130 Terrain Following Radar System																												
Acquisition Development Support																												
Acquisition Development Support																												
SOF Common TF/TA (Silent Knight) Radar																												
Prototype Integration and Testing																												
Developmental Testing (DT)																												
Operational Testing (Combined with DT)																												
Follow-On Platform Integration and Testing																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 United States Special Operations Command **DATE:** February 2011

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>SOF C-130 Avionics</i>				
SOF C-130 Avionics Modifications	4	2010	4	2016
<i>EC-130J Commando Solo Upgrades</i>				
EC-130J Commando Solo Upgrades	1	2010	4	2016
<i>Precision Strike Package</i>				
Precision Strike Package MC-130W Multi-Mission Modification	1	2010	4	2011
Precision Strike Package for SOF	1	2011	4	2016
<i>C-130 Terrain Following Radar System</i>				
C-130 Terrain Following Radar System	1	2011	4	2015
<i>Acquisition Development Support</i>				
Acquisition Development Support	1	2011	4	2011
<i>SOF Common TF/TA (Silent Knight) Radar</i>				
Prototype Integration and Testing	1	2010	4	2011
Developmental Testing (DT)	2	2011	4	2014
Operational Testing (Combined with DT)	4	2011	4	2014
Follow-On Platform Integration and Testing	1	2013	4	2016

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