

UNCLASSIFIED

PE NUMBER: 0207450F
 PE TITLE: E-10 Squadrons

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2008
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207450F E-10 Squadrons
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Cost (\$ in Millions)	FY 2007 Actual	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	351.924	39.032	42.215	0.000	0.000	0.000	0.000	Continuing	TBD
5131 Airframe	169.629	0.368	0.000	0.000	0.000	0.000	0.000	0.000	478.675
5132 Sensors	182.295	38.664	42.215	0.000	0.000	0.000	0.000	Continuing	TBD

(U) The E-10 program was terminated in FY08. The Global Hawk (GH) MP-RTIP sensor development continues through FY09 in the sensors project line.

(U) A. Mission Description and Budget Item Justification

FY2008 funding totals do not include \$178.390M FY2008 GWOT requirements still pending Congressional consideration.

The Global Hawk portion of the MP-RTIP program remains fully funded and will continue to provide a radar for a robust Global Hawk intelligence, surveillance, and reconnaissance (ISR) capability. The MP-RTIP equipped Global Hawk defines the Global Hawk Block 40 configuration which provides persistent ISR, including GMTI, SAR imaging, and limited AMTI capabilities. Global Hawk Block 40 will not provide a cruise missile defense capability. MP-RTIP will continue to support NATO Alliance Ground Surveillance (AGS) radar conceptual design and early decision analysis activities to support the United States' involvement in the NATO AGS program. This program is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD). MP-RTIP entered SDD in FY04.

The E-10A program was in Pre-SDD, or Technology Development, and the testbed aircraft would have supported MP-RTIP WAS flight test for the MP-RTIP SDD program. The E-10A was intended to be a key node of the C2 Constellation (see PE 0207449F) bringing operational command and control to the joint warfighter through the use of advanced sensors, sensor fusion, network-centric warfare and high-speed, wide-band communications systems. The E-10A, equipped with the Multi-Platform Radar Technology Insertion Program (MP-RTIP) WAS radar, would have delivered a focused Air Moving Target Indicator (AMTI) capability for Cruise Missile Defense (CMD); an advanced, next-generation Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR) imaging capability for surface surveillance; and an open-system architecture to facilitate dynamic Battle Management, Command & Control (BMC2) with growth potential for Unmanned Aerial Vehicle (UAV) control, space radar interface and Intelligence, Surveillance and Reconnaissance (ISR) management functions.

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	366.012	39.703	42.568
(U) Current PBR/President's Budget	351.924	39.032	42.215
(U) Total Adjustments	-14.088	-0.671	
(U) Congressional Program Reductions	0.000		
Congressional Rescissions	-2.184	-0.313	
Congressional Increases			
Reprogrammings	-1.416		
SBIR/STTR Transfer	-10.488	-0.358	
(U) <u>Significant Program Changes:</u>			
- E-10A technology demonstration program terminated in May 07			
- E-10A WAS portion of MP-RTIP terminated May 07			
- E-10 767-400ER aircraft terminated Oct 07			
- Limited risk reduction of BMC2 Mission Execution, BMC2 Kill Chain, and Radar Hardware verification directed to continue			
- FY08 PB included funding to complete the GH MP-RTIP Development Units (DU).			

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207450F E-10 Squadrons			PROJECT NUMBER AND TITLE 5131 Airframe		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5131 Airframe	169.629	0.368	0.000	0.000	0.000	0.000	0.000	0.000	478.675
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) The E-10 program was terminated in FY08.

(U) A. Mission Description and Budget Item Justification

This project was established to design, develop, and integrate modifications to a wide-body aircraft to host multiple sensor configurations with integrated Battle Management Command & Control (BMC2). The E-10A would have been a key node of the C2 Constellation (see PE 0207449F) bringing operational command and control to the joint warfighter through the use of advanced sensors, sensor fusion, network-centric warfare and high-speed, wide band communications systems. The E-10A, equipped with the Multi-Platform Radar Technology Insertion Program (MP-RTIP) Wide Area Surveillance (WAS) radar, would have delivered a focused Air Moving Target Indicator (AMTI) capability for Cruise Missile Defense (CMD); an advanced, next-generation Ground Moving Target Indicator (GMTI) and synthetic Aperture Radar (SAR) imaging capability for surface surveillance; and an open-system architecture to facilitate dynamic BMC2 with growth potential for Unmanned Aerial Vehicle (UAV) control, space radar interface and Intelligence, Surveillance and Reconnaissance (ISR) management functions.

Funds in this project have been used to: (1) incrementally fund the purchase of a Boeing 767-400ER aircraft to serve as the testbed for the MP-RTIP WAS "large-sized" variant of the MP-RTIP radar system, (2) design and develop the testbed modifications, (3) support Weapon System Integration activities to include development of key BMC2 communications and computing applications to prove out the MP-RTIP radar and establish future BMC2 architectures, (4) pursue future studies/spiral development to support continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities including leveraging BMC2 development for other enterprise applications, and (5) conduct risk reduction activities in the areas of BMC2 Mission Execution and BMC2 Kill Chain.

This program was categorized as Budget Activity (BA) 5 to reflect a program in Technology Development (Pre-System Development and Demonstration (Pre-SDD)), with the testbed aircraft supporting flight test for the MP-RTIP WAS Radar SDD program.

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Weapon System Integration (WSI) efforts (including BMC2 efforts)--beginning with a demonstration aircraft and necessary BMC2 to prove the Key Performance Parameters (KPPs) and basic radar requirements associated with the WAS/MP-RTIP sensor until termination decision.	82.732	0.000	0.000
(U) Incremental funding of a 767-400ER testbed.	25.000	0.000	0.000
(U) Purchase MP-RTIP Lab/Test Hardware (Development Unit) materials.	0.000	0.000	0.000
(U) Systems engineering and design activities until termination decision.	14.080	0.000	0.000
(U) Test & Evaluation Efforts (examples include Joint Test Force (JTF), Air Force Operational Test and Evaluation Center (AFOTEC), Operator-In-The-Loop (OITL), Joint Interoperability Test Center (JITC)) including support of BMC2 Kill Chain and Mission Execution risk reduction activities.	0.361	0.000	0.000
(U) Conduct Future Studies/Spiral Development--includes concept exploration, program definition/risk reduction	46.800	0.000	0.000

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0207450F E-10 Squadrons	PROJECT NUMBER AND TITLE 5131 Airframe
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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(including BMC2 efforts), technology insertion/development, and spiral development efforts supporting continuous improvement and implementation of Command & Control, Intelligence, Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and cruise missile defense architecture, joint decisive operations and the AEF Task Force CONOPS. Continue limited risk reduction activities in the areas of Battle Management Command and Control (BMC2) Mission Execution, BMC2 Kill Chain, and MP-RTIP WAS Radar Hardware Verification.			
(U) Program office operations effort.	0.656	0.368	0.000
(U) Total Cost	169.629	0.368	0.000

(U) C. Other Program Funding Summary (\$ in Millions)	<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</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0207450F Project 5132 (MP-RTIP Sensors)	182.295	38.664	42.215	0.000	0.000	0.000	0.000	Continuing	TBD

(U) Remark: The program office terminated the E-10A portion of the MP-RTIP WAS radar development based on direction received in May 07. This direction also included authorization to continue limited risk reduction activities in the areas of Battle Management Command and Control (BMC2) Mission Execution and BMC2 Kill Chain. The program office terminated the 767-400ER aircraft, originally envisioned as the E-10A tested, based on direction received in Oct 07.

(U) **D. Acquisition Strategy**
On 30 May 2006, OSD(AT&L) approved the acquisition strategy focusing on technology development/risk reduction, with emphasis on demonstrating a Cruise Missile Defense capability coupled with interleaved Ground Moving Target Indicator (GMTI) and Synthetic Aperture Radar (SAR) capabilities. This would have allowed entry into a low-risk SDD phase for the E-10A Weapon System. The program office terminated the E-10A TDP received in May 07. This direction also included authorization to continue limited risk reduction activities in the areas of Battle Management Command and Control (BMC2) Mission Execution and BMC2 Kill Chain. The program office terminated the 767-400ER aircraft, originally envisioned as the E-10A testbed, based on direction received in Oct 07.

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Exhibit R-3, RDT&E Project Cost Analysis

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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
<u>(U) Product Development</u>												
Weapon System Integration (WSI) and Battle Management Command & Control (BMC2)	SS/CPAF	Northrop Grumman Corporation; Melbourne, FL	541.413	82.732	Oct-06	0.000		0.000		0.000	624.145	TBD
767-400ER Testbed	SS/FFP	The Boeing Company; Seattle, WA	64.981	25.000	Oct-06	0.000		0.000		0.000	89.981	TBD
MP-RTIP Lab/Test Hardware (Development Unit)	SS/CPAF	Northrop Grumman Corporation (MP-RTIP); El Segundo, CA	71.850	0.000		0.000		0.000		0.000	71.850	TBD
Systems Engineering Future Studies/Spiral Development	Various SS/CPFF	Various Northrop Grumman Corporation; Melbourne, FL	25.013	0.000	Oct-06	0.000		0.000		0.000	25.013	TBD
			37.377	46.800	Jun-07	0.000		0.000		0.000	84.177	TBD
Subtotal Product Development			740.634	154.532		0.000		0.000		0.000	895.166	TBD
Remarks:												
<u>(U) Test & Evaluation</u>												
AFOTEC	AF Form 616	Various	0.308	0.000		0.000		0.000		0.000	0.308	TBD
Joint Test Force (JTF) Operator-In-The-Loop (OITL)	Various MIPR	Various Hanscom AFB, MA	2.439	0.361	Oct-06	0.000		0.000		0.000	2.800	TBD
			0.217	0.000		0.000		0.000		0.000	0.217	TBD
Joint Interoperability Test Center (JITC)	MIPR	Interop Joint Venture, VA	0.058	0.000		0.000		0.000		0.000	0.058	TBD
Subtotal Test & Evaluation			3.022	0.361		0.000		0.000		0.000	3.383	TBD
Remarks:												
<u>(U) Management</u>												
Program Office Support	Various	Various	3.255	0.656	Oct-06	0.368	Oct-07	0.000		0.000	4.279	TBD
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Bedford, MA	36.740	14.080	Oct-06	0.000		0.000		0.000	50.820	TBD
Subtotal Management			39.995	14.736		0.368		0.000		0.000	55.099	TBD
Remarks:												
<u>(U) Total Cost</u>			783.651	169.629		0.368		0.000		0.000	953.648	TBD

Remarks: FY2003 and FY2004 reflected in PE 0207449F C2 Constellation, Project 5064 (Airframe).
The Air Force terminated the 767-400ER aircraft, originally envisioned to serve as the E-10A flying testbed, in Oct 07, thereby avoiding the final payment (\$34.6M, FY07).

Exhibit R-4, RDT&E Schedule Profile

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PE NUMBER AND TITLE
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PROJECT NUMBER AND TITLE
5131 Airframe

E-10A Program Pre-SDD – Technology Development

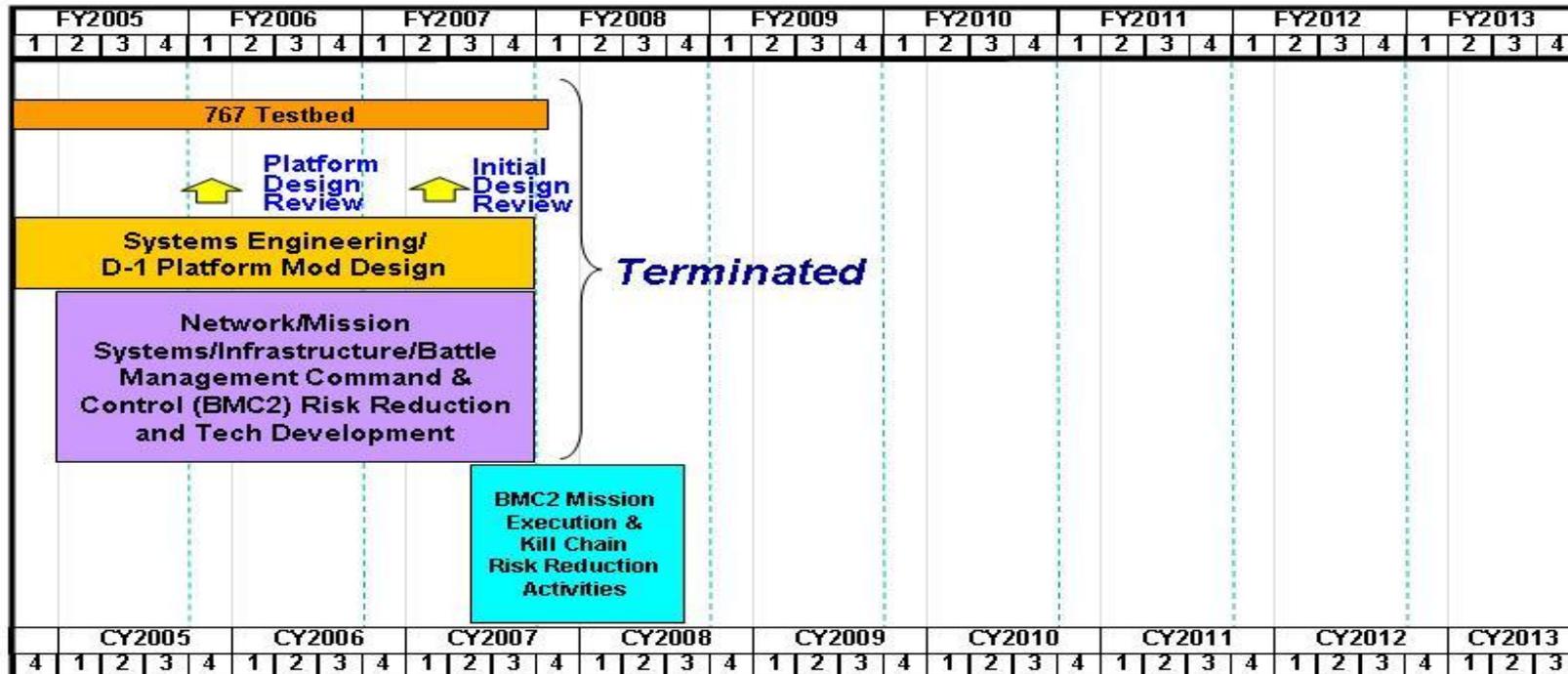


Exhibit R-4a, RDT&E Schedule Detail

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05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

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PROJECT NUMBER AND TITLE

5131 Airframe

(U) Schedule Profile

(U) System Engineering/D-1 Platform Modification Design

(U) Network/Mission Systems/Infrastructure/BMC2 Risk Reduction and Technology Development

(U) System Initial Design Review (IDR)

FY 2007

1-4Q

1-4Q

2Q

FY 2008

1-3Q

FY 2009

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)				PE NUMBER AND TITLE 0207450F E-10 Squadrons			PROJECT NUMBER AND TITLE 5132 Sensors		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5132 Sensors	182.295	38.664	42.215	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) Remarks:

- The program office terminated the E-10A portion of the MP-RTIP WAS radar development based on direction received in May 07. FY08 and FY09 PB include funding to complete the Global Hawk MP-RTIP Development Units (DU).
- FYDP RDT&E Article Deliveries:
 FY 2006: Global Hawk (GH) Development Unit (DU #1) RTIP radar for integration
 FY 2007: GH DU #2 radar for integration to Proteus and support of RQ-4B development/operational test (DT/OT) in FY2009.
 FY 2007: GH DU #3 radar emulator to support RQ-4B platform system integration.

(U) A. Mission Description and Budget Item Justification

This project was established to develop a family of modular, scalable next generation sensors for multiple platforms to support network centric operations with integrated intelligence, surveillance, and reconnaissance capability.

The Multi-Platform Radar Technology Insertion Program (MP-RTIP) is a family of modular, scalable, two-dimensional active electronically scanned array (2D-AESA) radars. The Wide Area Surveillance (WAS), or larger sensor, would have been the sensor capability of the E-10A Increment 1 weapon system to provide cruise missile defense and improved ground moving target indicator (GMTI)/synthetic aperture radar (SAR) imaging. The MP-RTIP Global Hawk variant is the smaller sensor providing the sensor capability for Global Hawk Block 40. The program office terminated the E-10A WAS portion of the MP-RTIP radar development based on direction received in May 07. This direction also included authorization to continue limited risk reduction activities in the area of MP-RTIP WAS Radar Hardware Verification.

Funds in this project will be used for the development, fabrication, and test of MP-RTIP sensor capabilities. The project also continues to support NATO Alliance Ground Surveillance (AGS) conceptual design and early design development activities.

This project is categorized as Budget Activity (BA) 5 to reflect a program in System Development and Demonstration (SDD).

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued E-10A WAS MP-RTIP design and development for integration on the E-10A platform until termination directon was received. Continue limited MP-RTIP WAS risk reduction supporting future platform applications. Continue Global Hawk MP-RTIP design and development for integration onto the Global Hawk target platform. FY08 PB includes funding to complete the Global Hawk MP-RTIP Developmental Units (DU).	177.490	35.915	40.494
(U) Continue Future Studies/Spiral Development insertion-- includes concept exploration, program definition/risk reduction, sensor technology insertion/development and spiral development efforts (such as Maritime Mode development) supporting continuous improvements and implementation of Command & Control, Intelligence,	0.000	0.000	0.252

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(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Surveillance, and Reconnaissance (C2ISR) capabilities enabling the joint air and missile defense architecture, joint decisive operations and the AEF Task Force CONOPS.			
(U) Continue Test Efforts (examples include Operator-In-The-Loop [OITL]; Joint Test Force Support; AFOTEC Support; and Independent Verification & Validation [IV&V])	4.346	2.147	1.074
(U) Continue program office operations	0.459	0.602	0.395
(U) Total Cost	182.295	38.664	42.215

(U) C. Other Program Funding Summary (\$ in Millions)	<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</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) PE 0207450F Project 5131 (E-10A Airframe)	169.629	0.368	0.000	0.000	0.000	0.000	0.000	0.000	169.997
(U) PE0305220F Project 5144 (Global Hawk MP-RTIP Sensor)	7.684	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.684

(U) D. Acquisition Strategy
 The MP-RTIP program supports the evolutionary acquisition of Global Hawk by providing sensors for the Global Hawk Block 40. Post E-10A Wide Area Surveillance (WAS) sensor termination, the MP-RTIP program plans to provide 3 GH RDT&E sensors. The Global Hawk program will fund GH MP-RTIP production sensors for the operational Global Hawk Block 40 platforms. The MP-RTIP program also supports risk reduction of MP-RTIP versions for other platforms.

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(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> MP-RTIP	SS/CPAF	Northrop-Gru mman Corporation; El Segundo, CA	770.911	173.171	Oct-06	31.428	Nov-07	37.238	Oct-08	0.000	1,012.748	TBD
Future Studies/Spiral Development	Various	Various	8.924	0.000		0.000		0.252	Oct-08	0.000	9.176	TBD
Subtotal Product Development			779.835	173.171		31.428		37.490		0.000	1,021.924	TBD
Remarks:												
(U) <u>Test & Evaluation</u> Test & Evaluation	Various	Various	8.551	4.346	Dec-06	2.147	Dec-07	1.074	Dec-08	0.000	16.118	TBD
Subtotal Test & Evaluation			8.551	4.346		2.147		1.074		0.000	16.118	TBD
Remarks:												
(U) <u>Management</u> Program Office Support	Various	Various	2.578	0.459	Oct-06	0.602	Oct-07	0.395	Oct-08	0.000	4.034	TBD
Systems Engineering/IV&V (FFRDC)	SS/CPFF	MITRE Corporation; Hanscom AFB, MA	9.175	4.319	Oct-06	4.487	Oct-07	3.256	Oct-08	0.000	21.237	TBD
Subtotal Management			11.753	4.778		5.089		3.651		0.000	25.271	TBD
Remarks:												
(U) Total Cost			800.139	182.295		38.664		42.215		0.000	1,063.313	TBD
Remark: FY 2002 and prior reflected in PE 0207581F, Joint STARS FY 2003 and FY 2004 reflected in PE 0207449F C2 Constellation, Project 5065 (Sensors)												

Exhibit R-4, RDT&E Schedule Profile

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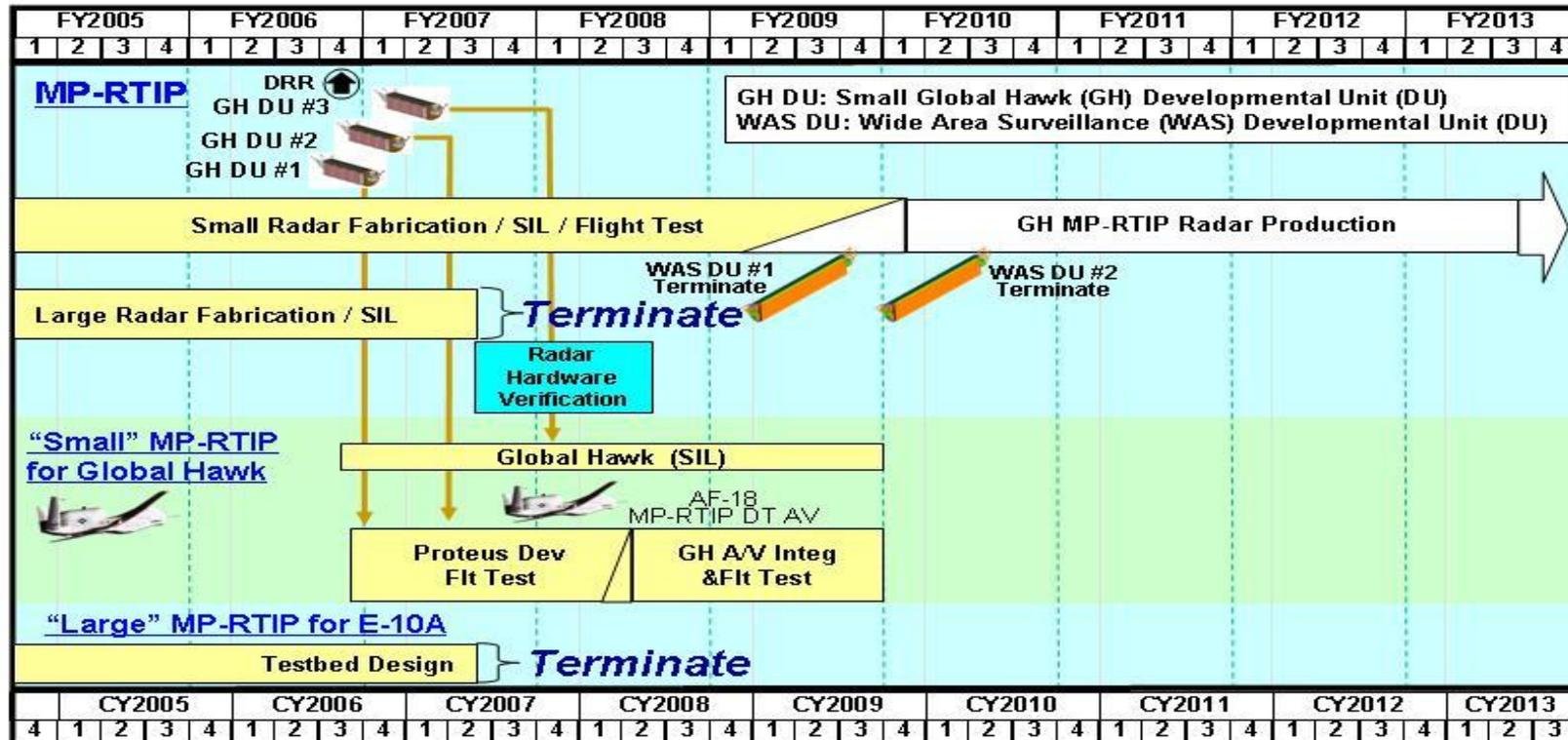
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PE NUMBER AND TITLE
0207450F E-10 Squadrons

PROJECT NUMBER AND TITLE
5132 Sensors

MP-RTIP System Development and Demonstration (SDD)



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(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) SMALL RADAR (GLOBAL HAWK) DEVELOPMENT	1-4Q	1-4Q	1-4Q
(U) GH DU #2 BUILD	1-2Q		
(U) GH DU #3 BUILD	1-4Q		
(U) GH DU # 1 FLIGHT TEST (ON PROTEUS SURROGATE)	1-2Q		
(U) GH DU#1 TO SIL	2-4Q	1-4Q	1-4Q
(U) GH DU # 2 FLIGHT TEST (ON PROTEUS SURROGATE)	2-4Q	1-4Q	
(U) GH DU#3 TO SIL		1-4Q	1-4Q
(U) GH DU#2 INTEGRATION & TEST (ON GH AIR VEHICLE)*			1-4Q
(U) LARGE RADAR (WAS) DEVELOPMENT**	1-3Q		
(U) WAS DU # 1 BUILD**	1-3Q		
(U) WAS RADAR HARDWARE VERIFICATION AND RISK REDUCTION	3-4Q	1-3Q	

* Note: Schedule depends on Global Hawk program

**Note: Large radar (WAS) development terminated in FY 2007, partial WAS DU will be delivered to Government.