PE NUMBER: 0401119F
PE TITLE: C-5 Airlift Squadrons

Exhibit R-2, RDT&E Budget Item Justification	DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

	Cost ($ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	173.960	127.118	95.266	0.000	0.000	0.000	0.000	0.000	0.000	2,045.609
4495	Avionics Modernization Program	10.174	4.219	3.933	0.000	0.000	0.000	0.000	0.000	0.000	418.230
4835	Reliability Enhancement & Reengining Program	163.786	122.899	71.671	0.000	0.000	0.000	0.000	0.000	0.000	1,588.200
5353	C-5 Block Upgrade	0.000	0.000	19.662	0.000	0.000	0.000	0.000	0.000	0.000	39.179

(U) A. Mission Description and Budget Item Justification

674495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort for the C-5 [Phase II is the Reliability Enhancement and Re-engining Program (RERP)]. AMP implements communication, navigation, surveillance/air traffic management (CNS/ATM) [formerly, Global Air Traffic Management (GATM)] and navigation/safety capability and the All Weather Flight Control System (AWFCS). It installs Deputy Secretary of Defense (DepSecDef) directed navigation/safety equipment: Terrain Awareness and Warning System (TAWS) and Traffic Alert and Collision Avoidance System (TCAS), reducing the threat of controlled flight into terrain and mid-air collisions. CNS/ATM capability requirements will be incorporated into the aircraft to meet current and future International Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress towards free flight capability. The AWFCS portion of AMP replaces low reliability line replaceable units (LRUs) in the automatic flight control system and replaces aging, non-supportable mechanical instruments in the engine and flight systems. Connectivity to mobility command and control capabilities will also be incorporated in the AMP design. The TCAS portion was accelerated ahead of the rest of the AMP mod and was completed 31 Oct 02. Two AMP RDT&E test articles were funded in FY99 for installation and flight test in FY02/03/04/05. AMP's first flight occurred in Dec 02. The final software build completed Jun 05, and operational testing completed Jul 06. A portion of avionics capability required for modernization that was not complete at the end of AMP development will be captured and funded in RERP. All other avionics capability will be captured in a separate follow-on block upgrade program. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development. AMP requirements have been expanded to incorporate updates to the new avionics architecture, to include security enhancements to the Global Positioning System. Equipment DMS issues will be resolved to support continued operations through studies, development, and redesign efforts. Congressional plus-ups provided funding for Inductive Thermography in FY08 ($1.5M) and FY09 ($2.4M).

674835: Reliability Enhancement and Re-engining Program (RERP): Phase II of an Air Force (AF) planned two-phase modernization effort for the C-5. It improves aircraft reliability, maintainability, and availability. RERP will enable the C-5 to achieve wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while reducing Total Ownership Cost (TOC). This effort centers around replacing TF39 engines with a more reliable, Commercial Off-the-Shelf (COTS) CF6 (F138 military designation) turbofan engine with increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase payload capability and access to Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) airspace. The modification also decreases aircraft time to climb, increases engine-out climb gradient for takeoff, improves transportation system throughput, and decreases engine removals. Additionally, numerous other system modifications will be performed (e.g., auxiliary power units, electrical, hydraulics, fuel system, fire suppression system, pressurization/air conditioning system, landing gear, and airframe) to increase fleet availability and reduce TOC. RDT&E funded three test articles for installation and flight test. RERP's Preliminary Design Review (PDR) completed in Jan 03 and the Air Vehicle Critical Design

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons

Review (CDR) completed in Mar 04. First Flight of the first test article occurred in Jun 06, followed by first flight of second and third test articles in Nov 06 and Mar 07, respectively. The flight test program completed with no significant technical issues, accomplishing 100% of ground and flight test specification points and two Integrated System Evaluations. A portion of avionics capability not complete at the end of AMP development (Phase 1) will be incorporated in RERP or in a follow-on block upgrade program. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned Budget Activity 7. Increased costs due to development delays, budget adjustments, and production cost increases associated with engines, pylons, reliability enhancement items, and Lockheed Martin labor led to a review of total program requirements. SecAF notified Congress on 27 Sep 07 of critical Nunn-McCurdy (NM) breaches for Average Procurement Unit Cost (APUC) and Program Acquisition Unit Cost (PAUC). An out-of-cycle Selected Acquisition Report (SAR) was submitted to Congress on 14 Nov 07. This restructured program reduced RERP scope to include only 49 Production aircraft (47 C-5Bs and 2 C-5Cs). On March 14, 2008 USD AT&L conducted a successful Milestone C (MS C) Defense Acquisition Board (DAB). USD AT&L signed the Acquisition Program Baseline (APB) reflecting the NM certification and the MS C approval on June 24, 2008. Equipment Diminishing Manufacturing Sources (DMS) issues will be resolved to support continued operations through studies, bridge buys, life of type buys, development and redesign efforts. Note: "Total cost" reflects prior years through FY10 only.

675353: C-5 Block Upgrade: The software (S/W) and hardware (H/W) baselines between the Avionics Modernization Program (AMP) and Reliability Enhancement and Re-engining Program (RERP) have diverged. S/W deficiencies fixed under AMP sustainment (Block Cycle Changes) reappear in the RERP 3.3 S/W release. This increases the workload to both operator and maintenance users. The AMP sustainment build fixed Multifunctional Display Unit (MFDU) updates and Automatic Flight Control System (AFCS) Built in Test (BIT) deficiencies. MFDU updates improve operator awareness and AFCS BIT allows maintenance users to correct deficiencies. At a minimum, changes/improvements incorporated into RERP need to be added to the AMP baseline to keep the S/W baselines from diverging any further. Deficiencies noted in the RERP 3.3 S/W release during OT&E also need to be incorporated in both baselines to continue cost avoidance in future S/W builds. Additionally, the current C-5 AMP system has a total of two Core Processor Module (CPM) cards [one in the Versatile Integrated Avionics (VIA) and one in the Avionics Interface Unit (AIU)]. Originally, AMP was to have 50% spare processing and memory capability. Currently CPM-1 and CPM-2, respectively, have only 22% and 19% throughput capability remaining. This capacity does not allow room for any new capability and contributes to current computer problems. Failure to upgrade the system to 3 CPMs will affect mission capable rates and will inhibit the ability to fix current Deficiency Reports (DRs). A third CPM should be added before RERP full rate production in order to remove multiple H/W fleet configurations between AMP/RERP. Purpose of the initial effort of this program is to provide a measured approach to implement a common baseline for the C-5 fleet in order to allow insertion and integration of newly required capabilities and replacement of future unsupportable equipment. Equipment Diminishing Maufacturing Source (DMS) issues will be resolved to support continued operations through studies, bridge buys, life-of-type buys, development, and redesign efforts. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7. Note: The C-5 Block Upgrade Program is a New Start program beginning in FY10.

Exhibit R-2, RDT&E Budget Item Justification	DATE May 2009
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons

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

		FY 2008	FY 2009	FY 2010
(U)	Previous President's Budget	178.990	125.063	28.136
(U)	Current PBR/President's Budget	173.960	127.118	95.266
(U)	Total Adjustments	-5.030	2.055	
(U)	Congressional Program Reductions			
	Congressional Rescissions		-0.345	
	Congressional Increases		2.400	
	Reprogrammings			
	SBIR/STTR Transfer	-5.030		

(U) Significant Program Changes:

FY10 increase due to a certified restructured RERP to Congress and provided a new Acquisition Decision Memorandum (ADM). This restructured program reduced RERP scope to include only 49 production aircraft (47 C-5Bs and 2 C-5Cs).

FY10 increase - BPAC675353: C-5 Block Upgrade: This is a new start effort needed to manage software/hardware configurations for the C-5 fleet.

Exhibit R-2a, RDT&E Project Justification

DATE: May 2009

BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE: 4495 Avionics Modernization Program

Cost ($ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4495 Avionics Modernization Program	10.174	4.219	3.933	0.000	0.000	0.000	0.000	0.000	0.000	418.230
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

674495: Avionics Modernization Program (AMP): Phase I of an Air Force planned two-phase modernization effort for the C-5 [Phase II is the Reliability Enhancement and Re-engining Program (RERP)]. AMP implements communication, navigation, surveillance/air traffic management (CNS/ATM) [formerly, Global Air Traffic Management (GATM)] and navigation/safety capability and the All Weather Flight Control System (AWFCS). It installs Deputy Secretary of Defense (DepSecDef) directed navigation/safety equipment: Terrain Awareness and Warning System (TAWS) and Traffic Alert and Collision Avoidance System (TCAS), reducing the threat of controlled flight into terrain and mid-air collisions. CNS/ATM capability requirements will be incorporated into the aircraft to meet current and future International Civil Aviation Organization (ICAO)/Federal Aviation Administration (FAA) requirements and to progress towards free flight capability. The AWFCS portion of AMP replaces low reliability line replaceable units (LRUs) in the automatic flight control system and replaces aging, non-supportable mechanical instruments in the engine and flight systems. Connectivity to mobility command and control capabilities will also be incorporated in the AMP design. The TCAS portion was accelerated ahead of the rest of the AMP mod and was completed 31 Oct 02. Two AMP RDT&E test articles were funded in FY99 for installation and flight test in FY02/03/04/05. AMP's first flight occurred in Dec 02. The final software build completed Jun 05, and operational testing completed Jul 06. A portion of avionics capability required for modernization that was not complete at the end of AMP development will be captured and funded in RERP. All other avionics capability will be captured in a separate follow-on block upgrade program. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development. AMP requirements have been expanded to incorporate updates to the new avionics architecture, to include security enhancements to the Global Positioning System. Equipment DMS issues will be resolved to support continued operations through studies, development, and redesign efforts. Congressional plus-ups provided funding for Inductive Thermography in FY08 ($1.5M) and FY09 ($2.4M).

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010
(U) System Engineering/Program Management	0.472	0.427	0.000
(U) AMP Avionics Design/Development/Contractor Test	6.583	0.962	1.200
(U) Prototype Fabrication/Install	0.544	0.174	0.400
(U) Mission Support	1.821	2.300	0.733
(U) Government Flight Test Cost	0.754	0.356	1.600
(U) Total Cost	10.174	4.219	3.933

Exhibit R-2a, RDT&E Project Justification		DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE: 4495 Avionics Modernization Program

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

	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-11	84.426	94.901	79.939							724.297
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-19	23.584	7.407	4.882							35.873
(U) Aircraft Procurement, AF, BA-5, C-5 Reliability Enhancement and Re-engining Program, BP-11 Advance Procurement	53.000	50.762	108.300							264.594
(U) Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability Enhancement and Re-engining Program, BP-11	147.952	280.116	502.308							939.364
(U) Aircraft Procurement, AF BA-5, C-5 Mods, Reliability Enhancement and Re-engining Program, BP-19	0.000	0.000	12.376							12.376

(U) D. Acquisition Strategy

Avionics Modernization Program: Program acquisition strategy establishes a single integrating contractor (Lockheed Martin Aeronautics Company) to modify and qualify integrated Commercial Off-the-Shelf (COTS) line replaceable units (LRUs) and software to meet C-5 performance and communication, navigation, surveillance/air traffic management (CNS/ATM) requirements; update existing C-5 engineering and technical data; develop interface control specifications based on performance requirements; prototype the new system; and support flight testing. AMP contract awarded to the Lockheed Martin/Honeywell team on 22 January 1999. $9.7M in FY99 procurement was added in the FY00 PB to accelerate Traffic Alert and Collision Avoidance System (TCAS) installations ahead of the rest of AMP.

Exhibit R-2a, RDT&E Project Justification		DATE May 2009
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0401119F C-5 Airlift Squadrons**	PROJECT NUMBER AND TITLE **4495 Avionics Modernization Program**

The AMP modification is planned for the entire C-5 fleet.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: **May 2009**

BUDGET ACTIVITY: **07 Operational System Development**

PE NUMBER AND TITLE: **0401119F C-5 Airlift Squadrons**

PROJECT NUMBER AND TITLE: **4495 Avionics Modernization Program**

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
0	CPAF		352.104	7.127	Jan-09	1.136	Jan-09	1.600			361.967	361.967
Rockwell Collins											0.000	
Subtotal Product Development			352.104	7.127		1.136		1.600		0.000	361.967	361.967
Remarks: Engineering complete.												
(U) Support												
730 ACSG. Robins AFB, GA			1.492	0.749		0.334		0.733			3.308	3.308
716 AESG, Wright-Patterson AFB, OH			22.448								22.448	22.448
Thermography				1.544		2.393					3.937	3.937
Subtotal Support			23.940	2.293		2.727		0.733		0.000	29.693	29.693
Remarks: Engineering complete.												
(U) Test & Evaluation												
418 Test Squadron		Edwards AFB	18.793								18.793	18.793
578 WRALC				0.754		0.356		1.600			2.710	2.710
Subtotal Test & Evaluation			18.793	0.754		0.356		1.600		0.000	21.503	21.503
Remarks: .												
(U) Management												
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks: Engineering complete.												
(U) Total Cost			394.837	10.174		4.219		3.933		0.000	413.163	413.163

Exhibit R-4, RDT&E Schedule Profile		DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE: 4495 Avionics Modernization Program

U.S. AIR FORCE

C-5 Summary Schedule
Avionics Modernization Program (AMP)

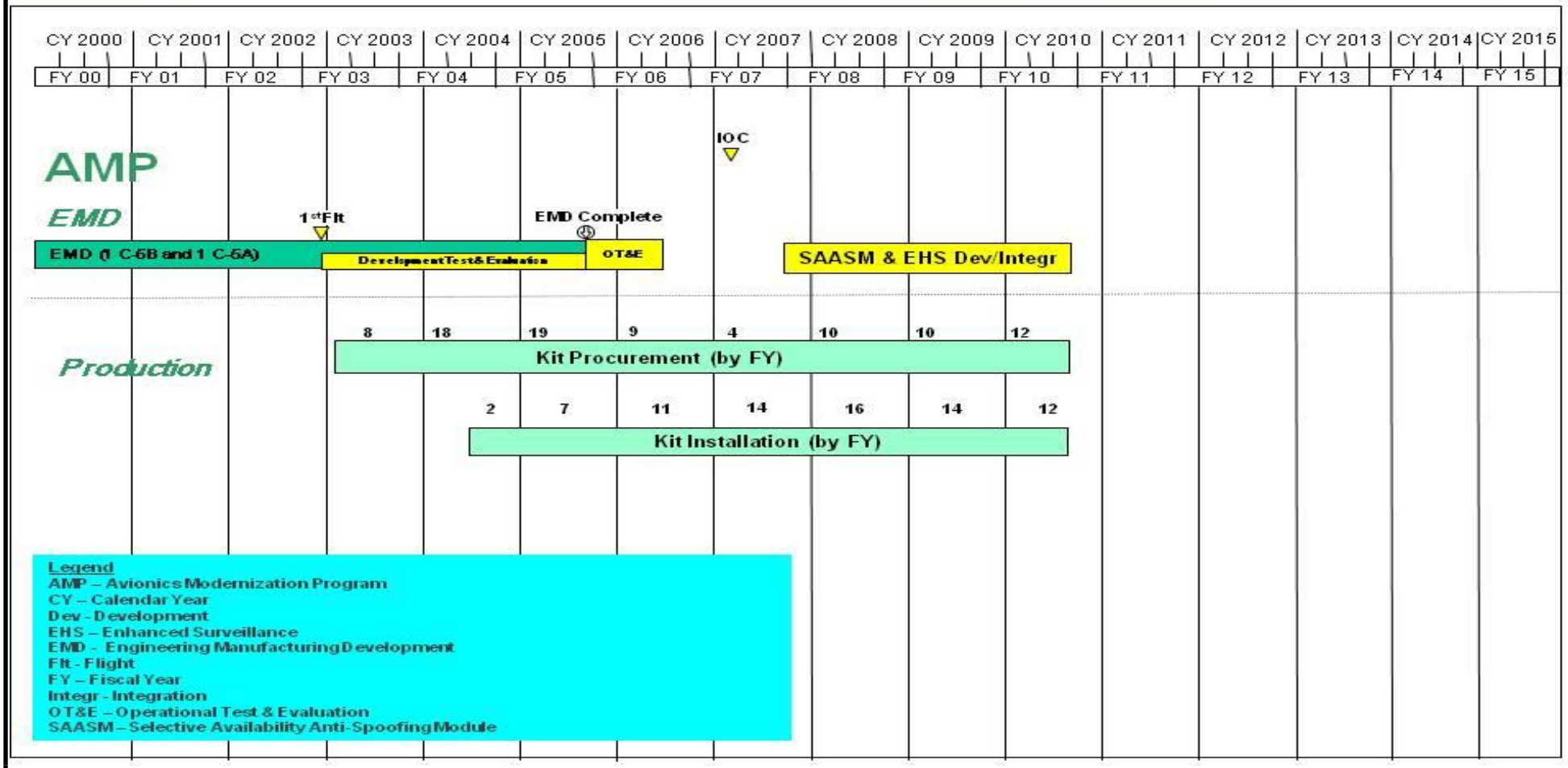

Exhibit R-4a, RDT&E Schedule Detail		DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE: 4495 Avionics Modernization Program

(U) Schedule Profile	FY 2008	FY 2009	FY 2010
(U) Aircraft is in production	1-4Q	1-4Q	1-4Q

Exhibit R-2a, RDT&E Project Justification			DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE: 4835 Reliability Enhancement & Reengining Program	

	Cost ($ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
4835	Reliability Enhancement & Reengining Program	163.786	122.899	71.671	0.000	0.000	0.000	0.000	0.000	0.000	1,588.200
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

674835: Reliability Enhancement and Re-engining Program (RERP): Phase II of an Air Force (AF) planned two-phase modernization effort for the C-5. It improves aircraft reliability, maintainability, and availability. RERP will enable the C-5 to achieve wartime mission requirements by increasing fleet availability (mission capable rate, departure reliability) while reducing Total Ownership Cost (TOC). This effort centers around replacing TF39 engines with a more reliable, Commercial Off-the-Shelf (COTS) CF6 (F138 military designation) turbofan engine with increased takeoff thrust and stage three noise compliance. These new engines (along with new pylons, wing attach fittings and upgrades, and thrust reversers) increase payload capability and access to Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) airspace. The modification also decreases aircraft time to climb, increases engine-out climb gradient for takeoff, improves transportation system throughput, and decreases engine removals. Additionally, numerous other system modifications will be performed (e.g., auxiliary power units, electrical, hydraulics, fuel system, fire suppression system, pressurization/air conditioning system, landing gear, and airframe) to increase fleet availability and reduce TOC. RDT&E funded three test articles for installation and flight test. RERP's Preliminary Design Review (PDR) completed in Jan 03 and the Air Vehicle Critical Design Review (CDR) completed in Mar 04. First Flight of the first test article occurred in Jun 06, followed by first flight of second and third test articles in Nov 06 and Mar 07, respectively. The flight test program completed with no significant technical issues, accomplishing 100% of ground and flight test specification points and two Integrated System Evaluations. A portion of avionics capability not complete at the end of AMP development (Phase 1) will be incorporated in RERP or in a follow-on block upgrade program. This project is comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned Budget Activity 7. Increased costs due to development delays, budget adjustments, and production cost increases associated with engines, pylons, reliability enhancement items, and Lockheed Martin labor led to a review of total program requirements. SecAF notified Congress on 27 Sep 07 of critical Nunn-McCurdy (NM) breaches for Average Procurement Unit Cost (APUC) and Program Acquisition Unit Cost (PAUC). An out-of-cycle Selected Acquisition Report (SAR) was submitted to Congress on 14 Nov 07. On 14 Feb 08, USD (AT&L) certified a restructured RERP to Congress and provided a new Acquisition Decision Memorandum (ADM). This restructured program reduced RERP scope to include only 49 Production aircraft (47 C-5Bs and 2 C-5Cs). These adjustments are reflected in the FY10 President's Budget (PB) . On March 14, 2008 USD AT&L conducted a successful Milestone C (MS C) Defense Acquisition Board (DAB). USD AT&L signed the Acquisition Program Baseline (APB) reflecting the NM certification and the MS C approval on June 24, 2008. Equipment Diminishing Manufacturing Sources (DMS) issues will be resolved to support continued operations through studies, bridge buys, life of type buys, development and redesign efforts. NOTE: "Total cost" reflects prior years through FY10 only.

Exhibit R-2a, RDT&E Project Justification		DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE: 4835 Reliability Enhancement & Reengining Program

	B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010
(U)	Systems Engineering/Program Management	14.390	9.484	15.855
(U)	RERP Design/Development/Contractor Test	112.120	80.461	22.521
(U)	Prototype Fabrication/Install	0.000	0.000	0.000
(U)	Mission Support	10.584	4.018	0.000
(U)	Government Test Support	22.692	7.016	3.580
(U)	Aircrew & Maintenance Trainer	4.000	21.920	29.715
(U)	Total Cost	163.786	122.899	71.671

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

		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost
(U)	AF RDT&E										
(U)	Other APPN										
(U)	Aircraft Procurement,AF, BA-5,C-5 Reliability Enhancement and Re-engining Program, BP-11 Advance Procurement	53.000	50.762	108.300							264.594
(U)	Aircraft Procurement,AF, BA-5,C-5 Mods, Reliability Enhancement and Re-engining Program, BP-11	147.952	280.116	502.308							939.364
(U)	Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-11	84.426	94.901	79.939							724.297
(U)	Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-19	23.584	7.407	4.882							35.873
(U)	Aircraft Procurement, AF, BA-5, C-5 Mods, Reliability	0.000	0.000	12.376							12.376

Exhibit R-2a, RDT&E Project Justification		DATE May 2009
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0401119F C-5 Airlift Squadrons**	PROJECT NUMBER AND TITLE **4835 Reliability Enhancement & Reengining Program**

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

Enhancement and
Re-engining Program, BP-19

(U) D. Acquisition Strategy

Reliability Enhancement and Reengining Program (RERP): The approved FY02 acquisition strategy and the updated FY06 acquisition strategy called for the modification of the entire C-5 aircraft fleet starting with the B-models first. System Development & Demonstration (SDD) includes 1 C-5A and 2 C-5Bs. The program acquisition strategy is to consider every opportunity to use commercially available components and processes to modernize C-5 products and processes to meet or exceed required system performance and support, so as to renew the weapon system until 2040. Lockheed Martin has been selected as the prime contractor through a sole source arrangement. Lockheed has selected General Electric (Powerplant), Goodrich (Pylon), and Honeywell (Avionics) as the major subcontractors.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: May 2009

BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE: 4835 Reliability Enhancement & Reengining Program

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Lockheed Martin Aeronautics Co (Pre-EMD)	FFP		46.738							0.000	46.738	46.738
Lockheed Martin Aeronautics Co (SDD)	CPAF		1,092.166	126.511	Oct-07	87.945	Dec-08	25.733	Oct-09	Continuing	TBD	TBD
Lockheed Martin Aeronautics Co (ICS)	Mulitple					2.000	Jan-09	12.643	Jan-10	Continuing	TBD	TBD
											0.000	
Subtotal Product Development			1,138.903	126.511		89.945		38.376		Continuing	TBD	TBD
Remarks: Costs shown on Interim Contract Support (ICS) line were previously included in SDD line. Due to a change in contracting strategy post-FY09 PB submission, these costs were moved from the SDD line to the ICS line. These costs represent the costs associated with post-SDD DMS resolution and Deficiency Report (DR) resolution during QOT&E to be executed using the ICS contract vehicle.												
(U) Support												
730.ACSG, Robins AFB, GA			22.013	4.730		2.465				0.000	29.208	29.208
716 AESG, Wright-Patterson AFB, OH			36.690	5.854		1.553				0.000	44.097	44.097
N/A											0.000	
Subtotal Support			58.703	10.584		4.018		0.000		0.000	73.305	73.305
Remarks:												
(U) Test & Evaluation												
418 Test Squadron (Edwards AFB)			32.237	22.692		7.016		3.580			65.525	65.525
N/A											0.000	
Subtotal Test & Evaluation			32.237	22.692		7.016		3.580		0.000	65.525	65.525
Remarks:												
(U) Management												
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Aircrew & Maintenance Trainer												
			0.000	4.000		21.920		29.715		Continuing	TBD	TBD
Subtotal Aircrew & Maintenance Trainer			0.000	4.000		21.920		29.715		Continuing	TBD	TBD
Remarks:												
(U)												
											0.000	
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			1,229.843	163.786		122.899		71.671		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE: May 2009

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
07 Operational System Development	0401119F C-5 Airlift Squadrons	4835 Reliability Enhancement & Reengining Program

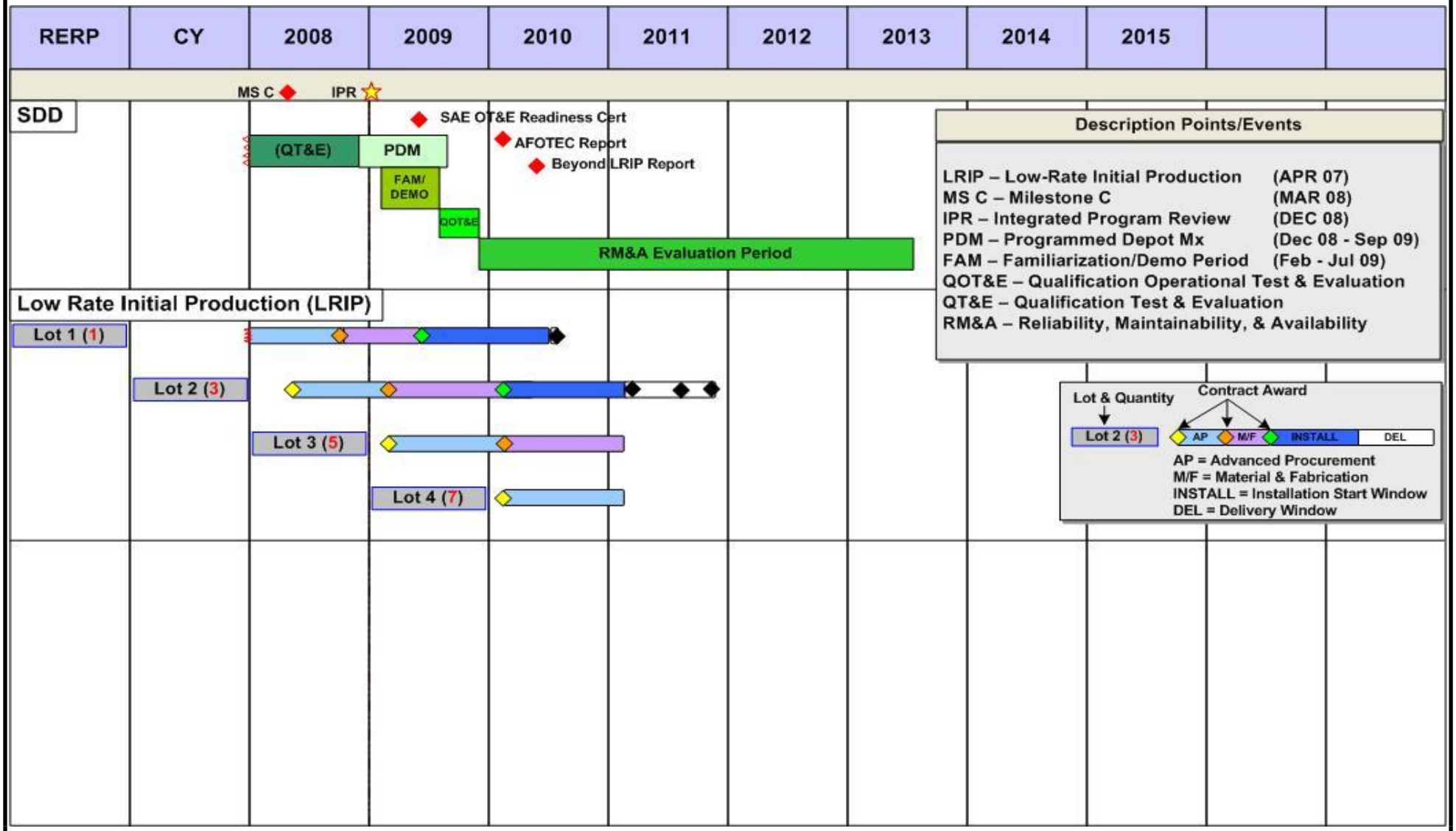

Exhibit R-4a, RDT&E Schedule Detail		DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE: 4835 Reliability Enhancement & Reengining Program

(U) Schedule Profile	FY 2008	FY 2009	FY 2010
(U) Milestone C	2Q		
(U) Integrated program Review (IPR)		2Q	
(U) Complete Qualification Operational Test and Evaluation (QOT&E) (AFOTEC Report Complete)			2Q

Exhibit R-2a, RDT&E Project Justification

DATE: May 2009

BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE: 5353 C-5 Block Upgrade

Cost ($ in Millions)		FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total
5353	C-5 Block Upgrade	0.000	0.000	19.662	0.000	0.000	0.000	0.000	0.000	0.000	39.179
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) A. Mission Description and Budget Item Justification

675353: C-5 Block Upgrade: The software (S/W) and hardware (H/W) baselines between the Avionics Modernization Program (AMP) and Reliability Enhancement and Re-engining Program (RERP) have diverged. S/W deficiencies fixed under AMP sustainment (Block Cycle Changes) reappear in the RERP 3.3 S/W release. This increases the workload to both operator and maintenance users. The AMP sustainment build fixed Multifunctional Display Unit (MFDU) updates and Automatic Flight Control System (AFCS) Built in Test (BIT) deficiencies. MFDU updates improve operator awareness and AFCS BIT allows maintenance users to correct deficiencies. At a minimum, changes/improvements incorporated into RERP need to be added to the AMP baseline to keep the S/W baselines from diverging any further. Deficiencies noted in the RERP 3.3 S/W release during OT&E also need to be incorporated in both baselines to continue cost avoidance in future S/W builds. Additionally, the current C-5 AMP system has a total of two Core Processor Module (CPM) cards [one in the Versatile Integrated Avionics (VIA) and one in the Avionics Interface Unit (AIU)]. Originally, AMP was to have 50% spare processing and memory capability. Currently CPM-1 and CPM-2, respectively, have only 22% and 19% throughput capability remaining. This capacity does not allow room for any new capability and contributes to current computer problems. Failure to upgrade the system to 3 CPMs will affect mission capable rates and will inhibit the ability to fix current Deficiency Reports (DRs). A third CPM should be added before RERP full rate production in order to remove multiple H/W fleet configurations between AMP/RERP. Purpose of the initial effort of this program is to provide a measured approach to implement a common baseline for the C-5 fleet in order to allow insertion and integration of newly required capabilities and replacement of future unsupportable equipment. Equipment Diminishing Maufacturing Source (DMS) issues will be resolved to support continued operations through studies, bridge buys, life-of-type buys, development, and redesign efforts. This project is comprised of low technical risk efforts supporting fielded weapons systems, and, therefore, was assigned to Budget Activity 7.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2008	FY 2009	FY 2010
(U) System Engineering/Program Management			1.420
(U) Block Upgrade Design/Development/Contractor Test			8.606
(U) Prototype Fabrication/Install			0.546
(U) Mission Support			2.335
(U) Government Test Support			1.012
(U) Aircrew & Maintenance Trainers			1.097
(U) OGCs			4.646
(U) Total Cost	0.000	0.000	19.662

Exhibit R-2a, RDT&E Project Justification		DATE May 2009
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE 5353 C-5 Block Upgrade

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

	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost to Complete	Total Cost

(U)

(U) D. Acquisition Strategy

C-5 Block Upgrade: Program acquisition strategy establishes a single integrating contractor (Lockheed Martin) to modify and qualify an integrated software/hardware system to support all configurations of the C-5 fleet. Updates include software/hardware to meet C-5 performance; Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) requirements; RERP software/hardware requirements; LAIRCM, and other growth in capability that may occur in the future. Random incorporation of capabilities denies optimal user capabilities in time of need and increases overall cost. "Block Upgrade 01" is the start of a measured approach in implementing a more common baseline to allow insertion and integration of newly acquired/required capabilities and replacement of future unsupportable equipment due to obsolescence or Diminishing Manufacturing Source (DMS) issues.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: May 2009

BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT NUMBER AND TITLE: 5353 C-5 Block Upgrade

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2008 Cost	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	FY 2010 Cost	FY 2010 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Lockheed Martin Aeronautics Co	CPAF							11.668			11.668	
Subtotal Product Development			0.000	0.000		0.000		11.668		0.000	11.668	0.000
Remarks:												
(U) Support												
730 ACSG, Robins AFB, GA								2.335			2.335	
Subtotal Support			0.000	0.000		0.000		2.335		0.000	2.335	0.000
Remarks:												
(U) Test & Evaluation												
418 Test Squadron								1.012			1.012	
Subtotal Test & Evaluation			0.000	0.000		0.000		1.012		0.000	1.012	0.000
Remarks:												
(U) Management												
								4.647			4.647	
Subtotal Management			0.000	0.000		0.000		4.647		0.000	4.647	0.000
Remarks:												
(U) Total Cost			0.000	0.000		0.000		19.662		0.000	19.662	0.000

Exhibit R-4, RDT&E Schedule Profile		DATE May 2009
BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE 5353 C-5 Block Upgrade

U.S. AIR FORCE

C-5 BUP Schedule

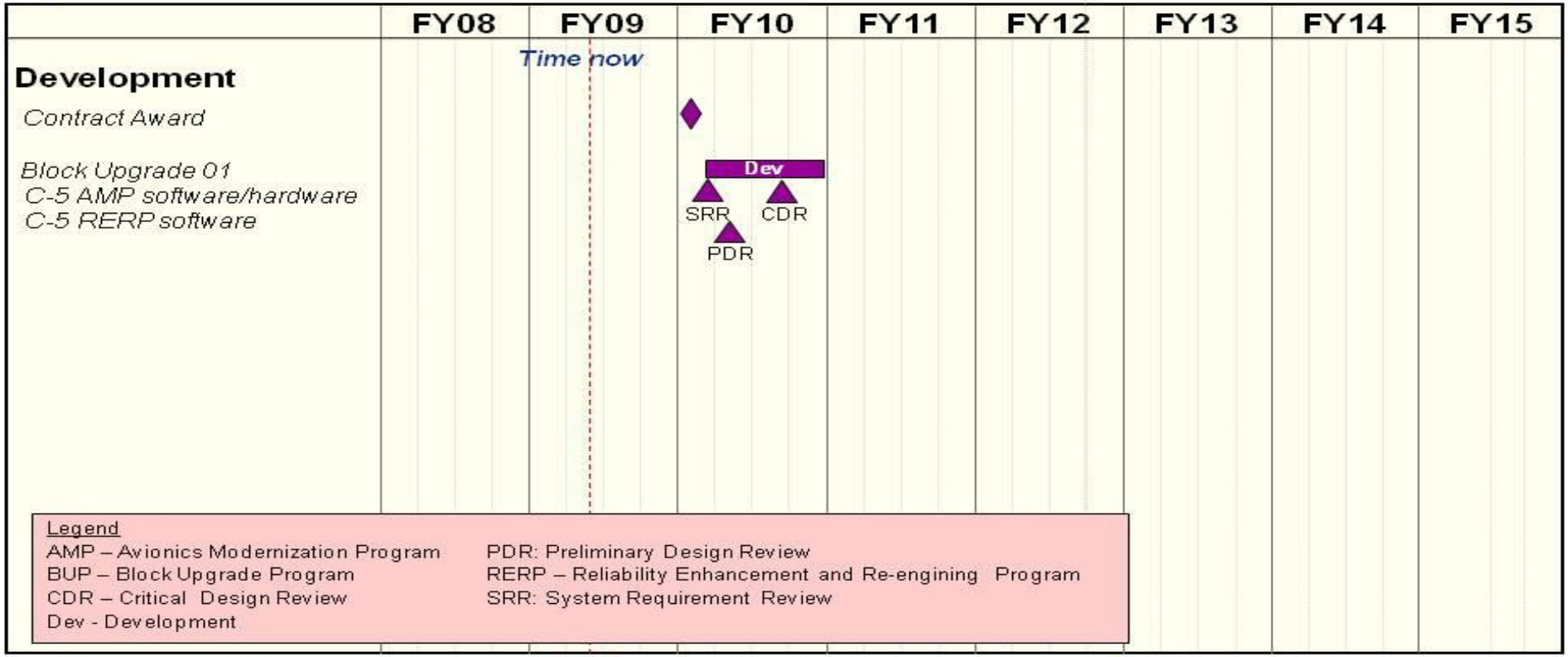

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Exhibit R-4a, RDT&E Schedule Detail		DATE: May 2009
BUDGET ACTIVITY: 07 Operational System Development	PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons	PROJECT NUMBER AND TITLE: 5353 C-5 Block Upgrade

(U) Schedule Profile	FY 2008	FY 2009	FY 2010
(U) System Development and Demonstration			1-4Q
(U) Production			3Q