EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2007	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-5**					R-1 ITEM NOMENCLATURE 0604512N Shipboard Aviation Systems			
COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	**36.894**	**32.767**	**28.100**	**22.302**	**19.719**	**19.899**	**20.238**	**20.592**
2232 - CV Launch & Recovery Systems	**31.788**	**29.779**	**28.100**	**22.302**	**19.719**	**19.899**	**20.238**	**20.592**
9999 - Congressional Adds	**5.106**	**2.988**						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This Navy unique project addresses the System Development and Demonstration (SDD) of all systems required to recover and launch Navy/Marine Corps aircraft (fixed/rotary wing and Vertical/Short Take Off and Landing (VSTOL) operating aboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD) and aviation facility ships. This program element includes :

(1) Advanced Arresting Gear (AAG): AAG replaces the MK7 arresting gear, which has reached the limits of its operating capability.

(2) Aviation Data Management and Control System (ADMACS): ADMACS will use state-of-the-art information technology and decision support systems to automate collection and distribution of information, enabling aviation operations on board aircraft carriers to be accomplished in a more efficient and effective manner.

(3) Technology insertion efforts for the Electromagnetic Aircraft Launch System (EMALS) and the steam catapult:

a) EMALS Advanced Control Technology Insertion: Introduction of sensorless control technologies, resulting in removal of a significant number of feedback sensors in the system; improving reliability, maintainability and availability.

b) EMALS High Density Energy Storage: Introduction of solid state energy storage technology to replace the first generation rotary inertial systems. This will result in a 300 Long Ton reduction in ship system installed weight with a corresponding reduction in Height of Center of Gravity Above the Baseline, and enhanced reliability, availability and maintainability.

c) Advanced Catapult Control System for Steam Catapults: Introduce EMALS control, prognostics and health monitoring technology into the steam catapult, providing a common operator interface, reduced maintenance and enhanced availability. This effort compliments the improvements introduced into the arresting gear through AAG.

Congressional Adds:

Synthetic Material Arresting Cable Gear: This program will develop and test a new Synthetic Fiber Arresting Gear Cable to replace the current steel cable material with a lighter weight material having a higher strength to weight ratio. Conduct systems engineering tasks of requirements analysis and tracking, and specification development. Conduct design engineering and laboratory developmental testing on various novel materials and constructions. Conduct modeling and simulation, failure mode analysis, performance data analysis, and fatigue life testing. Award contract to cable manaufacturer for various synthetic cables. Conduct advanced material sheave study to optimize cable to sheave performance.

Aircraft Carrier Aviation Modernization: This program is used to research modernization strategies for the Aircraft Launch and Recovery Equipment and Support Equipment systems aboard carriers in order to reduce the number of human operators, reduce human error, and thereby increase safety/reliability and reduce the fleet's operating costs.

Machine Vision Confirmation of Launch Bar Engagement: This program will develop a system based on machine vision technology to verify the proper hook up of aircraft to the catapult under all operating conditions.

Aircraft Carrier Launch and Recovery Support Equipment: This program is used to research modernization strategies for the Aircraft Launch and Recovery Equipment and Support Equipment systems aboard carriers in order to reduce the number of human operators, reduce human error, and thereby increase safety/reliability and reduce the fleet's operating costs.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2007**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	R-1 ITEM NOMENCLATURE 0604512N Shipboard Aviation Systems

(U) B. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget:	37.784	33.392	21.972	20.130
Current BES:	36.894	32.767	28.100	22.302
Total Adjustments	-0.890	-0.625	6.128	2.172
Summary of Adjustments				
Congressional Reductions	-0.015	-3.500		
Congressional Undistributed Reductions	-0.875	-0.125		
Congressional Increases		3.000		
Economic Assumptions			0.059	0.389
Miscellaneous Adjustments			6.069	1.783
Subtotal	-0.890	-0.625	6.128	2.172

(U) Schedule:

2232: ADMACS Block 2 was previously funded under Projects 9071 and 3126.

(U) Technical:
Not applicable.

R-1 SHOPPING LIST - Item No. 111

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification						DATE: **February 2007**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604512N Shipboard Aviation Systems			PROJECT NUMBER AND NAME 2232 - CV Launch & Recovery Systems				
COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	**31.788**	**29.779**	**28.100**	**22.302**	**19.719**	**19.899**	**20.238**	**20.592**
RDT&E Articles Qty	**1**	**1**						

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This Navy unique project addresses the System Development and Demonstration (SDD) of all systems required to recover and launch Navy/Marine Corps aircraft [fixed/rotary wing and Vertical/Short Take-Off and Landing (VSTOL)] operating aboard aircraft carriers (CV/CVN), amphibious assault ships (LHA/LHD) and aviation facility ships. This program includes the following systems under Project 2232, including the funding of production representative models (PRM) for:

(1) Advanced Arresting Gear (AAG): AAG replaces the MK7 arresting gear, which has reached the limits of its operating capability. The test article consists of a single arresting gear wire with all associated hardware and software subsystems.
(2) Aviation Data Management and Control System (ADMACS): ADMACS will use state-of-the-art information technology and decision support systems to automate collection and distribution of information, enabling aviation operations on board aircraft carriers to be accomplished in a more efficient and effective manner.
(3) Technology insertion efforts for the Electromagnetic Aircraft Launch System (EMALS) and the steam catapult:
a) EMALS Advanced Control Technology Insertion: Introduction of sensorless control technologies, resulting in removal of a significant number of feedback sensors in the system; improving reliability, maintainability and availability.
b) EMALS High Density Energy Storage: Introduction of solid state energy storage technology to replace the first generation rotary inertial systems. This will result in a 300 Long Ton reduction in ship system installed weight with a corresponding reduction in Height of Center of Gravity Above the Baseline, and enhanced reliability, availability and maintainability.
c) Advanced Catapult Control System for Steam Catapults: Introduce EMALS control, prognostics and health monitoring technology into the steam catapult, providing a common operator interface, reduced maintenance and enhanced availability. This effort compliments the improvements introduced into the arresting gear through AAG.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2007**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604512N Shipboard Aviation Systems	2232- CV Launch & Recovery Systems

(U) B. Accomplishments/Planned Program

AAG	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	31.788	26.119	26.375	21.587
RDT&E Articles Quantity	1			

AAG

Complete Preliminary Design and Integrated Baseline Reviews. Complete initial Critical Design Reviews. Purchase one AAG production representative test system to support shorebased integrated testing. Complete remaining Critical Design Reviews. Fabricate test system hardware. Initiate test site upgrades. Deliver test system to the NAVAIR Lakehurst Jet Car Test Site. Install test system. Conduct Test Readiness Review. Conduct IT-B1 and IT-B2 integrated testing, and initiate IT-B3. Conduct OTRRs affiliated with the start of IT-B2 and IT-B3 integrated testing. Provide engineering and management support to the program.

ADMACS	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		3.660	1.725	0.715
RDT&E Articles Quantity		1		

ADMACS

Conduct a series of preliminary and critical design reviews for the Block 2 upgrades. Purchase one ADMACS Block 2 production representative test system to support developmental testing. The Block 2 test article will consist of network servers, switches, a router, workstations and affiliated database and communications software. Conduct a system level critical design review. Integrate and test Block 2 software and hardware. Prepare for and conduct Milestones B and C for Block 2 upgrade.
ADMACS Block 2 was funded under Project 9071 (Congressional Add) and Project 3126 (ONR) in FY 2002-2005.

R-1 SHOPPING LIST - Item No. 111

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2007**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604512N Shipboard Aviation Systems	2232 - CV Launch & Recovery Systems

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY2013	To Complete	Total Cost
OPN Line Item: 4216 Aircraft Launch & Recovery Equip	23.951	29.697	38.863	47.203	133.914	117.624	110.453	98.652		Continuing

D. ACQUISITION STRATEGY:

AAG: The Navy competitively awarded two Cost Plus Fixed Fee (CPFF) TD phase contracts to develop the AAG. Upon completion of the Preliminary Design and Integrated Baseline Reviews, the Navy awarded a single Cost Plus Award Fee (CPAF) option to General Atomics for the SDD phase to develop and demonstrate a production representative AAG at the NAVAIR Lakehurst Jet Car and Runway Aircraft Landing test sites. After successful demonstration of the production representative AAG, the Navy will award Fixed Price Incentive (FPI) contracts for LRIP and full rate production quantities.

ADMACS: The Navy will develop ADMACS internally, using commercially available servers, switches, routers, workstations and database and communications software. Production systems will be procured from multiple sources, and integrated and deployed by NAWCAD, Lakehurst, NJ or possibly by a systems integrator contractor.

R-1 SHOPPING LIST - Item No. 111

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1) | DATE: **February 2007**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-5** | PROGRAM ELEMENT: 0604512N Shipboard Aviation Systems | PROJECT NUMBER AND NAME: 2232 - CV Launch & Recovery Systems

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary H/W Development (AAG)	C/CPFF	Northrop Grum/Sunnyvale,Ca	12.418								12.418	12.418
Primary H/W Development (AAG)	C/CPAF	Gen Atomics/San Diego,Ca	44.173	19.150	12/06	17.024	12/07	8.033	12/08	0.606	88.986	88.986
Award Fees (AAG)	C/CPAF	Gen Atomics/San Diego,Ca	2.355	0.551	12/06	2.203	12/07	0.551	12/08	4.665	10.325	10.325
Primary H/W Development (AAG)	WX	NAWCAD, Lakehurst	2.633	0.676	11/06	0.814	11/07	0.943	11/08	0.068	5.134	
Systems Engineering (AAG)	WX	NAWCAD, Lakehurst	4.641	1.517	11/06	2.218	11/07	2.320	11/08	0.184	10.880	
Shipboard Integration (AAG)	WX	NAWCAD, Lakehurst	0.563	0.341	11/06	0.290	11/07	0.300	11/08	0.024	1.518	
Primary H/W Development (Tech Inserts)	var	NAWCAD, Lakehurst								73.724	73.724	
Primary H/W Development (ADMACS)	var	NAWCAD, Lakehurst		3.120	11/06	0.325	11/07	0.500	11/08		3.945	
Shipboard Integration (ADMACS)	WX	NAWCAD, Lakehurst				1.200	11/07				1.200	
Systems Engineering (ADMACS)	WX	NAWCAD, Lakehurst		0.140	11/06						0.140	
Subtotal Product Development			66.783	25.495		24.074		12.647		79.271	208.270	

Remarks: Award fee is 0% fixed and 12% (max.) of total contract.

Integrated Logistics Support (AAG)	WX	NAWCAD, Lakehurst	1.522	0.850	11/06	0.877	11/07	0.924	11/08	0.073	4.246	
Integrated Logistics Support (ADMACS)	WX	NAWCAD, Lakehurst		0.150	11/06						0.150	
Subtotal Support			1.522	1.000		0.877		0.924		0.073	4.396	

R-1 SHOPPING LIST - Item No. 111

CLASSIFICATION:

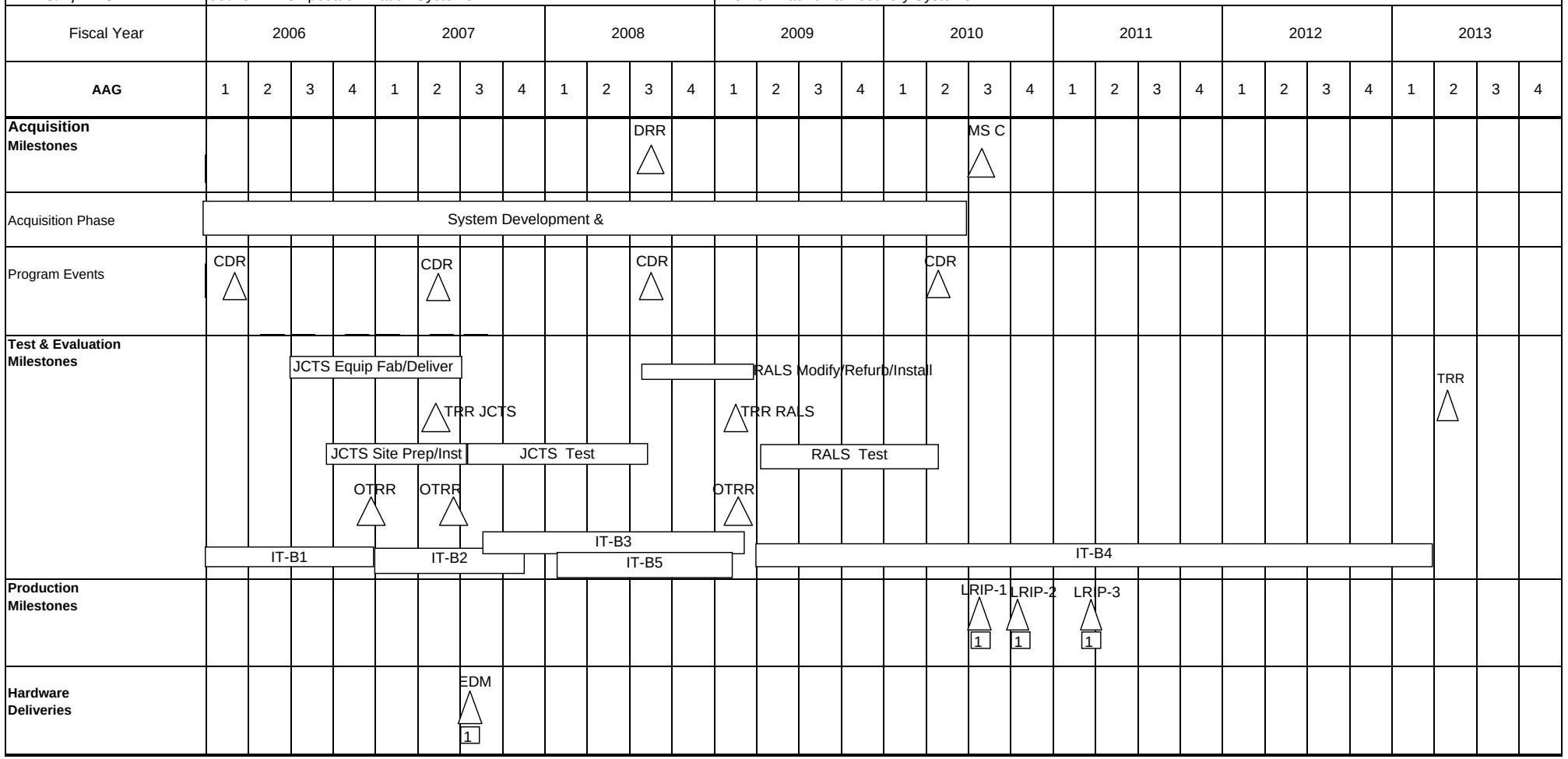
Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2007**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604512N Shipboard Aviation Systems				PROJECT NUMBER AND NAME 2232 - CV Launch & Recovery Systems						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 07 Cost	FY 07 Award Date	FY 08 Cost	FY 08 Award Date	FY 09 Cost	FY 09 Award Date	Cost to Complete	Total Cost	Target Value of Contract
DT&E (AAG)	WX	NAWCAD Lakehurst, NJ	0.386	1.777	11/06	1.608	11/07	8.342	12/08	0.651	12.764	
OT&E (AAG)	var.	var.	0.380	0.150	var.	0.150	var.	0.060	var.		0.740	
Facility Testing - JCTS (AAG)	WX	NAWCAD Lakehurst, NJ	0.947	1.000	04/07	1.080	04/08				3.027	
Developmental Test- Lab (ADMACS)	WX	NAWCAD Lakehurst, NJ		0.250	11/06	0.200	11/07				0.450	
Integrated Testing (ADMACS)	WX	NAWCAD Lakehurst, NJ						0.215	11/08		0.215	
Subtotal T&E			1.713	3.177		3.038		8.617		0.651	17.196	
Program Management Support	RX	Eagle Systems/California,MD	0.180	0.087	11/06	0.091	11/07	0.094	11/08	Continuing	Continuing	
Travel	TO	NAVAIR Patuxent Rv, MD	0.077	0.020	var.	0.020	var.	0.020	var.	Continuing	Continuing	
Subtotal Management			0.257	0.107		0.111		0.114		Continuing	Continuing	
Remarks:												
Total Cost			70.275	29.779		28.100		22.302		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST Item No. 111

CLASSIFICATION:

EXHIBIT R4, Schedule Profile — **AAG** — DATE: **February 2007**

APPROPRIATION/BUDGET /	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	0604512N Shipboard Aviation Systems	2232 CV Launch & Recovery Systems



R-1 SHOPPING LIST - Item No. 111

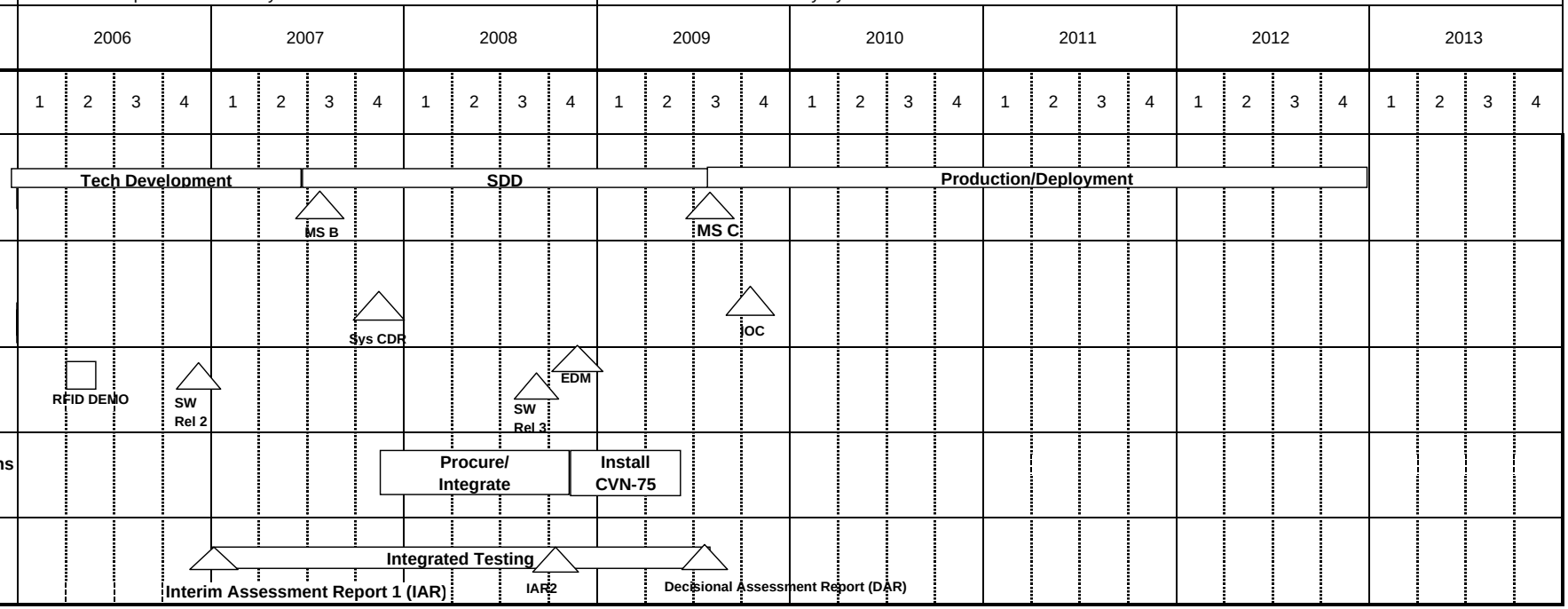
CLASSIFICATION:

Exhibit R-4a, Schedule Detail **AAG**				DATE: **February 2007**					
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**		PROGRAM ELEMENT 0604512N Shipboard Aviation Systems		PROJECT NUMBER AND NAME 2232 CV Launch & Recovery Systems					
Schedule Profile		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
SDD Phase									
IT-B1 Intergrated Test		1Q-4Q							
Critical Design Review (CDR) - Multiple CDRs		1Q	2Q	3Q		2Q			
JCTS Test Article Fabrication		3Q-4Q	1Q-3Q						
JCTS Test Site Preparation & Install		3Q-4Q	1Q-3Q						
Operational Test Readiness Reviews (OTRR)		4Q	2Q		1Q				
IT-B2 Intergrated Test			1Q-4Q						
Test Readiness Review (TRR) JCTS Test			2Q						
EDM Delivery			3Q						
JCTS Test			3Q-4Q	1Q-3Q					
IT-B3 Intergrated Test			3Q-4Q	1Q-4Q	1Q				
IT-B5 Integrated Test				1Q-4Q	1Q				
Design Readiness Review (DRR)				3Q					
RALS System Mods/Refurbishment/Installation					2Q-4Q	1Q-2Q			
Test Readiness Review (TRR) RALS Test					1Q				
IT-B4 Intergrated Test					2Q-4Q	1Q-4Q	1Q-4Q	1Q-4Q	1Q
RALS Test					2Q-4Q	1Q-2Q			
MS C						3Q			
LRIP Awards						3Q-4Q	1Q		
Test Readiness Review									2Q
NOTE: JCTS is the Jet Car Test Site, NAWCAD Lakehurst, NJ									
RALS is the Runway Arrested Landing Site, NAWCAD Lakehurst, NJ									

R-1 SHOPPING LIST - Item No. 111

CLASSIFICATION:

EXHIBIT R4, Schedule Profile		DATE:
	ADMACS Block 2	**February 2007**
APPROPRIATION/BUDGET A	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-5	0604512N Shipboard Aviation Systems	2232 CV Launch & Recovery Systems



R-1 SHOPPING LIST - Item No. 111

CLASSIFICATION:

Exhibit R-4a, Schedule Detail **ADMACS Block 2**				DATE: **February 2007**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT 0604512N Shipboard Aviation Systems			PROJECT NUMBER AND NAME 2232 CV Launch & Recovery Systems				
Schedule Profile	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
TD Phase								
Software Delivery Release 2	4Q							
Radio Frequency Identification Demonstration	2Q							
SDD Phase								
MS B		3Q						
System Design Reviews - Combined PDR/CDR		4Q						
Hardware (EDM) Procure/Integrate (Lab)			4Q					
Software Delivery Release 3			3Q					
Hardware (EDM) Delivery			4Q					
Hardware (EDM) Installation (CVN-75)			4Q-	1Q-2Q				
Integrated Testing (IT)		1Q-4Q	1Q-4Q	1Q-3Q				
Decisional Assessment Report (DAR)				3Q				
MS C				3Q				
Initial Operating Capability (IOC)				4Q				

EXHIBIT R-2a, RDT&E Project Justification						DATE: February 2007		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-5**	PROGRAM ELEMENT NUMBER AND NAME 0604512N Shipboard Aviation Systems			PROJECT NUMBER AND NAME 9999 - Congressional Adds				
COST ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project Cost	**5.106**	**2.988**						
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: Congressional Adds:

B. Accomplishments/Planned Program:

9565N Synthetic Fiber Arresting Gear Cable	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.973	0.996		
RDT&E Articles Quantity				

Congressional Add:
Syntehtic Material Arresting Cable Gear: This program will develop and test a new Synthetic Fiber Arresting Gear Cable to replace the current steel cable material with a lighter weight material having a higher strength to weight ratio. Conduct systems engineering tasks of requirements analysis and tracking, and specification development. Conduct design engineering and laboratory developmental testing on various novel materials and constructions. Conduct modeling and simulation, failure mode analysis, performance data analysis, and fatigue life testing. Award contract to cable manaufacturer for various synthetic cables. Conduct advanced material sheave study to optimize cable to sheave performance.

9774N Aircraft Carrier Modernization Strategies	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	3.169			
RDT&E Articles Quantity				

Congressional Add:
Aircraft Carrier Aviation Modernization: This program is used to research modernization strategies for the Aircraft Launch and Recovery Equipment and Support Equipment systems aboard carriers in order to reduce the number of human operators, reduce human error, and thereby increase safety/reliability and reduce the fleet's operating costs.

9775N Machine Vision Technology	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost	0.964			
RDT&E Articles Quantity				

Congressional Add:
Machine Vision Confirmation of Launch Bar Engagement: This program will develop a system based on machine vision technology to verify the proper hook up of aircraft to the catapult under all operating conditions.

9A43N Research Modernization Strategies	FY 06	FY 07	FY 08	FY 09
Accomplishments/Effort/Subtotal Cost		1.992		
RDT&E Articles Quantity				

Congressional Add:
Aircraft Carrier Launch and Recovery Support Equipment: This program is used to research modernization strategies for the Aircraft Launch and Recovery Equipment and Support Equipment systems aboard carriers in order to reduce the number of human operators, reduce human error, and thereby increase safety/reliability and reduce the fleet's operating costs.