Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*				R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*							
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	76.148	70.117	45.445	-	45.445	18.829	31.000	20.154	20.460	Continuing	Continuing
2232: *CV/CVN Launch and Recover*	74.953	70.117	45.445	-	45.445	18.829	31.000	20.154	20.460	Continuing	Continuing
9999: *Congressional Adds*	1.195	-	-	-	-	-	-	-	-	0.000	1.195

A. Mission Description and Budget Item Justification

CV Launch & Recovery System - 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 (CVN), amphibious assault ships (LHA/LHD) and air capable ships. This program element includes the following:

(1) Advanced Arresting Gear (AAG)
(2) Aviation Data Management and Control System (ADMACS)
(3) Electromagnetic Aircraft Launch System (EMALS)
(4) Advanced Launch Control System (ALCS)
(5) Compact Swaging Machine (CSM)
(6) Aircraft Launch & Recovery Equipment (ALRE) Modernization
(7) Aircraft Launch and Recovery Equipment (ALRE) Service Life Management program (SLMP)
(8) Advanced Prognostics for Steam Catapults (APSC)

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	78.496	70.117	34.068	-	34.068
Current President's Budget	76.148	70.117	45.445	-	45.445
Total Adjustments	-2.348	-	11.377	-	11.377
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-0.340	-			
• SBIR/STTR Transfer	-1.389	-			
• Program Adjustments	-	-	12.685	-	12.685
• Section 219 Reprogramming	-0.617	-	-	-	-
• Rate/Misc Adjustments	-	-	-1.308	-	-1.308
• Congressional General Reductions Adjustments	-0.002	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)

	FY 2010	FY 2011
Project: 9999: *Congressional Adds*		
Congressional Add: *Voyage Repair Team Tool Management*	1.195	-
Congressional Add Subtotals for Project: 9999	1.195	-
Congressional Add Totals for all Projects	1.195	-

Change Summary Explanation

Schedule:

2232: Advanced Arresting Gear (AAG): The AAG System Design and Development (SDD) integrated testing program at the Jet Car Track Site (JCTS) experienced hardware installation, integration and commissioning issues, resulting in the delay of the start of Deadload testing; the completion of JCTS and RALS; and Milestone C slipped to 2nd QTR FY2013. Deadload testing at JCTS is now scheduled to commence 2nd QTR FY2011.

Compact Swaging Machine (CSM) - Due to the addition of a shipboard test to reduce risk and to meet fleet priorities, the Performance and EMI Shock Test scheduled to begin in 2Q FY2010 moved to 1Q FY2011.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy	DATE: February 2011
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Advance Launch Control System (ALCS) - Due to the change in program acquisition strategy (contractor vs government design), the hardware, software and algorithm initiatives that were scheduled to begin in 1Q FY2011 were moved into 3Q FY2014. The development and analysis; trade studies; algorithm analysis, and development of acquisition documentation will start in FY2011.

Improved Fresnel Lens Optical Landing System (IFLOLS) - Due to the addition of an IFLOLS shipboard test as a risk mitigation effort, the integrated test period has been extended into 4Q FY2014.

Technical: Not Applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*	

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
2232: *CV/CVN Launch and Recover*	74.953	70.117	45.445	-	45.445	18.829	31.000	20.154	20.460	Continuing	Continuing
Quantity of RDT&E Articles	0	4	1	0	1	0	0	0	0		

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 (CVN), amphibious assault ships (LHA/LHD) and air capable ships. This program includes the following systems under Project 2232, including the funding of production representative models (PRM) for:

(1). Advanced Arresting Gear (AAG): The AAG program will design, develop, test and field an aircraft arrestment system to replace the MK7 arresting gear. AAG systems will be installed on all new construction aircraft carriers. AAG will provide the U.S. Navy with improved operational capability, while reducing operating and support costs. The AAG system will recover all existing and projected carrier based tail hook-equipped air vehicles well into the 21st century. The AAG Program's SDD phase test articles will consist of a land based, single wire configured aircraft arresting system, which includes associated hardware and software needed to conduct system integrated testing by arresting both dead-loads and aircraft.

(2). Aviation Data Management and Control System (ADMACS): ADMACS will use 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.
(a). ADMACS Block 2: Is a shipboard aviation information management system providing CVN aviation planning, execution and readiness assessment using integrated decision aids and supporting systems built into a highly adaptive system. ADMACS Block 2 provides a real time, fault tolerant (redundant), tactical information management system. The Block 2 test article consists of network switches, servers, workstations and affiliated database and communications software.
(b). ADMACS Block 3: ADMACS Block 3 begins to automate data input through various system interfaces; as well as intelligent agents and decision aides. These capabilities are added to the Block 2 architecture.

(3). Electromagnetic Aircraft Launch System (EMALS) Technology Insertion: EMALS will be the fixed wing aircraft catapult for the CVN-78 class of aircraft carriers. The program will further the development and insertion of applicable emerging technologies into EMALS capitalizing on the full capability of the system. The test article (FY12) will be manufactured, installed at the EMALS System Functional Demonstration (SFD) site and tested. The EMALS system was developed under the carrier system development program element (0603512N).

(4). Advanced Launch Control System (ALCS): ALCS will introduce control, prognostics and health monitoring technology into the steam catapult; providing a common operator interface, reduced maintenance, and enhanced availability. The insertion of an array of sensors into the steam catapult, an information technology (IT) infrastructure, algorithm development, and integration with ADMACS will provide health monitoring and prognostics, as well as maintenance and workload reductions.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

(5). Compact Swaging Machine (CSM): Funded by ONR (OSD PE# 060051D8Z) in FY 2009. The current process of pouring zinc sockets to attach the arresting gear purchase cable will be replaced with a new swaged terminal design that will be pressed on by means of a high density, compact, swaging machine.

(6). Aircraft Launch & Recovery Equipment (ALRE) Modernization:
(a). Improved Fresnel Lens Optical Landing System (IFLOLS) Phase 4: Control system processor and digital interfaces upgrades to support Built-In-Test (BIT), ADMACS integration & maintenance /obsolescence reduction.
(b). Improved Manually Operated Visual Landing Aid System (IMOVLAS): IMOVLAS will be the manual backup for IFLOLS which is the primary carrier Visual Landing Aid (VLA). IMOVLAS will be used in high sea states or if IFLOLS is inoperable, and will mirror current IFLOLS configuration in size & display.

(7). ALRE Service Life Management Program (SLMP): The ALRE SLMP for Catapult and Arresting Gear Systems is required to sustain carrier aviation operations of higher energy aircraft launch and recoveries that are increasing loads on the Launcher & Arresting Systems, that are affecting availability, maintainability and cost. This program will consist of service life assessment and extension initiatives and will establish the design foundation (structural, reliability, and maintainability analyses), permit appropriate assessment, track and focus design changes where most needed.

(8). Advanced Prognostics for Steam Catapults (APSC): This program was previously funded under Office of Naval Research PE 0203761N Technology Insertion Program for Savings (TIPS). APSC Waterbrake Monitoring Systems (WBMS) is intended to introduce diagnostics that assess the health of the catapult water brake by leveraging lessons learned from engineering investigations and an algorithm already in development.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: AAG	65.268	54.127	27.222
Articles:	0	0	0
Description: The AAG program will design, develop, test and field an aircraft arrestment system to replace the MK7 arresting gear. Provide engineering and management support for the AAG SDD program.			
FY 2010 Accomplishments: Awarded contract for first ship-set production. Conducted Test Readiness Reviews (TRRs). Completed upgrades to the Jet Car Track Site (JCTS) and Runway Arrested Landing Site (RALS). Delivered test system to the NAVAIR Lakehurst JCTS test site. Installed test system at JCTS. Integrated and commissioned test system hardware.			
FY 2011 Plans: Continue JCTS integrated testing. Prepare RALS test site. Remove test system from JCTS in preparation for installation at RALS.			
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Complete JCTS integrated testing. Install, integrate and commission test system at RALS. Conduct integrated testing at RALS. Conduct system maintenance demonstration at RALS.			
Title: ADMACS Block 2	5.635	0.102	-
Articles:	0	0	
Description: ADMACS Block 2 provides real time, fault tolerant (redundant), tactical information management system. ***FY 2010 Accomplishments:*** Completed Block 2 Developmental and Formal Qualification Testing which validated the operational application of the software. Conducted MS C. Commence installation of ADMACS Block 2 system on board CVN. ***FY 2011 Plans:*** Complete installation onboard CVN. Conduct Technical and Operational Evaluation.			
Title: ADMACS Block 3	-	3.619	3.912
Articles:		1	0
Description: ADMACS Block 3 begins to automate data input through various system interfaces; as well as intelligent agents and decision aides. These capabilities are added to the Block 2 architecture. ***FY 2011 Plans:*** Conduct System Requirement Review. Begin software and hardware development. Develop interfaces for ADMACS Block 3. ***FY 2012 Plans:*** Conduct Test Readiness Review and Functional Qualification Testing.			
Title: EMALS Technology Insertion	-	1.621	1.788
Articles:		0	1
Description: EMALS will be the fixed wing aircraft catapult for the CVN-78 class of aircraft carriers. The program will further the development and insertion of applicable emerging technologies into EMALS capitalizing on the full capability of the system. Test articles (FY12) will be manufactured, installed at the EMALS SFD site and tested. ***FY 2011 Plans:*** Develop system/software for integration into the ship-set design. Provide development, management, system engineering, test, and ship integration support. ***FY 2012 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Continue system/software for integration into the ship-set design. Provide development, management, system engineering, test, and ship integration support. Test articles will be manufactured, installed and tested at the EMALS (SFD) site.			
Title: ALCS	-	2.631	2.123
Articles:		0	0
Description: ALCS- Introduce control, prognostics and health monitoring technology into the steam catapult, providing a common operator interface, reduced maintenance and enhanced availability. ***FY 2011 Plans:*** Perform Reduction in Total Ownership Cost analysis, Sensor Technology Trade Study, Algorithm Analysis, Diminishing Manufacturing Sources and Material Shortages (DMSMS) Analysis, and support Capability Development Document and CONOPS Development. ***FY 2012 Plans:*** Develop Test and Evaluation Master Plan, and begin Information Assurance Strategy.			
Title: Compact Swaging Machine	2.350	1.503	0.500
Articles:	0	1	0
Description: Compact Swaging Machine - This program will replace the current process for attaching the terminal on the arresting gear purchase cable with a swaged terminal design that will be pressed on by means of a high density, compact, swaging machine. Funded by ONR (PE# 060051D8Z) in FY 2009. ***FY 2010 Accomplishments:*** Conduct functional testing on prototype unit developed under Defense Acquisition Challenge Program funding (OSD PE 0604051D8Z). ***FY 2011 Plans:*** Implement design modifications into the prototype unit and conduct performance testing, consisting of bench testing, jet car track testing and aircraft testing. ***FY 2012 Plans:*** Conduct shipboard test & evaluation.			
Title: ALRE Modernization	1.700	3.507	2.400

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Articles:	0	2	0
Description: IFLOLS and IMOVLAS to improve carrier aviations operations. ***FY 2010 Accomplishments:*** IFLOLS - Develop acquisition strategy; develop preliminary ECP; generate systems requirements; conduct preliminary trade studies (10 individual studies); conduct System Requirements Review (SRR); commence preliminary design. ***FY 2011 Plans:*** IFLOLS - Continue preliminary design; conduct Preliminary Design Reviews (PDR); conduct Critical Design Review (CDR). ***FY 2012 Plans:*** IFLOLS - Develop production representative model; conduct integration, environmental, functional & performance testing; conduct TRR. IMOVLAS - System specification will be developed and verified at SRR. Conduct CDR.			
Title: ALRE SLMP	-	3.007	5.400
Articles:		0	0
Description: ALRE SLMP is to study the C-13 catapult and MK7 arresting gear to determine where to design fielded equipment improvement. Address fielding of higher energy aircraft. ***FY 2011 Plans:*** Development of a load sensitive reliability model to determine the effect of the air wing on catapult and arresting gear. ***FY 2012 Plans:*** Continue development of a system load sensitive reliability model and prioritize Service Life Extension (SLE) efforts.			
Title: APSC	-	-	2.100
Articles:			0
Description: FY2012 new start. APSC: This program was previously funded under Office of Naval Research PE 0203761N Technology Insertion Program for Savings (TIPS). The APSC Waterbrake Monitoring Systems WBMS is intended to introduce diagnostics that assess the health of the catapult water brake by leveraging lessons learned from engineering investigations and an algorithm already in development. ***FY 2012 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Perform detail design.			
Accomplishments/Planned Programs Subtotals	74.953	70.117	45.445

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
• OPN/4216: *Aircraft Launch & Recovery Equipment*	39.683	37.063	19.777	0.000	19.777	83.097	65.710	49.096	56.107	Continuing	Continuing
• OPN/9020: *Aircraft Launch & Recovery Equipment Spares*	2.187	0.570	0.014	0.000	0.014	0.508	0.208	0.000	0.000	0.000	3.887

D. Acquisition Strategy

AAG: The Navy competitively awarded two Cost Plus Fixed Fee Technical Development 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 option to General Atomics for the SDD phase to develop and demonstrate a production representative AAG at the NAVAIR Lakehurst JCTS and RALS. In March 2009, the AAG program awarded a SDD contract modification to General Atomics for Transition to Production planning.

ADMACS: The Navy continues to design and develop ADMACS using commercially available servers, switches, workstations and database and communications software. One EDM system has been procured from a directed 8(a) Alaskan Native Corporation source.

EMALS: Technology Insertion: The Navy will develop emerging technologies for insertion into EMALS and award a contract to develop, manufacture, and install test articles at the EMALS System Functional Demonstration (SFD) site at Lakehurst, N.J.

ALCS: Develop and test system improvements for the MK-13 steam catapult.

Compact Swaging Machine: The Navy will amend an existing Small Business Technology Transfer (STTR) Phase III contract in order to build and test a prototype high density swaging machine which has been developed under Defense Acquisition Challenge Program funding (OSD PE 060051D8Z).

Aircraft Launch & Recovery Equipment (ALRE) Modernization:
(a) IFLOLS Phase IV: The Navy will develop IFLOLS using commercial equipment racks, processors, & displays.
(b) IMOVLAS: The Navy will develop IMOVLAS using commercial equipment racks, processors, and displays.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011
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ALRE SLMP: This program will consist of Service Life Assessment and Extension initiatives and will establish the design foundation (structural, reliability, and maintainability analyses), permit appropriate assessment, track and focus design changes where most needed.

APSC: The Navy will design and develop the APSC system utilizing commercially available sensors, data acquisition systems and computer processors. The Navy will award a contract(s) to procure components for System Functional Demonstration (SFD) site at Lakehurst, N.J., shipboard demonstration and for final system implementation.

E. Performance Metrics

AAG will complete SDD integrated testing at JCTS and RALS. Demonstrating key performance parameters and readiness for operational test.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy		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
Primary HW Dev-AAG	C/CPFF	Northrop Grum:Sunnyvale, CA	12.418	-		-		-		-	0.000	12.418	12.418
Primary HW Dev -AAG	C/CPAF	Gen Atomics:San Diego, CA	173.242	25.100	Dec 2010	10.688	Dec 2011	-		10.688	0.000	209.030	211.852
Award Fees-AAG	C/CPAF	Gen Atomics:San Diego, CA	3.392	3.607	Aug 2011	5.300	Aug 2012	-		5.300	0.000	12.299	15.030
Primary HW Dev-AAG	WR	NAWCAD:Lakehurst, NJ	15.497	8.805	Nov 2010	1.240	Nov 2011	-		1.240	1.277	26.819	
System Eng-AAG	WR	NAWCAD:Lakehurst, NJ	12.053	2.919	Nov 2010	1.262	Nov 2011	-		1.262	0.892	17.126	
System Eng-AAG	C/CPFF	L3 Services,Inc.:Marlton, NJ	0.198	0.096	Feb 2011	-		-		-	0.000	0.294	5.700
Shipboard Intgrn-AAG	WR	NAWCAD:Lakehurst, NJ	2.519	2.836	Nov 2010	0.264	Nov 2011	-		0.264	1.045	6.664	
Systems Engineering -AAG	C/CPFF	Wyle Lab, Inc:Huntsville, AL	0.103	-		-		-		-	0.000	0.103	0.103
Primary HW Dev-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	7.034	-		-		-		-	0.000	7.034	
Product Dev-ADMACS BLK 2	C/CPFF	Specialty Sys:Tom River ,NJ	0.508	-		-		-		-	0.000	0.508	0.508
Product Dev Supt-ADMACS BLK 2	C/CPFF	Sabre Sys:Warminster, PA	3.203	-		-		-		-	0.000	3.203	3.203
Shipboard Integ-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	1.200	-		-		-		-	0.000	1.200	
Shipboard Integ-ADMACS BLK 2	WR	PSNS:Bremerton, WA	0.100	-		-		-		-	0.000	0.100	
System Eng-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	0.140	-		-		-		-	0.000	0.140	
Primary HW Dev-ADMACS BLK 3	WR	NAWCAD:Lakehurst, NJ	-	3.259	Jan 2011	3.912	Nov 2011	-		3.912	6.275	13.446	
System Eng-ADMACS Blk 3	WR		-	0.180	Jan 2011	-		-		-	0.900	1.080	

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		NAWCAD:Lakehurst, NJ											
Primary HW Dev-EMALS Tech Insert	C/CPFF	Specialty Sys Inc:Toms River, NJ	-	1.182	Mar 2011	1.344	Dec 2011	-		1.344	18.644	21.170	21.582
System Eng-EMALS Tech Insert	WR	NAWCAD:Lakehurst, NJ	-	0.326	Nov 2010	0.329	Nov 2011	-		0.329	1.681	2.336	
System Eng-ALCS	WR	NAWCAD:Lakehurst, NJ	-	2.503	Nov 2010	1.933	Nov 2011	-		1.933	0.000	4.436	
Primary HW Dev-Swaging Mach	SS/CPFF	Creare Inc.:Hanover, NH	2.150	-		-		-		-	0.000	2.150	4.300
System Eng-Swaging Mach	WR	NAWCAD:Lakehurst, NJ	0.040	0.050	Nov 2010	0.050	Nov 2011	-		0.050	0.000	0.140	
Primary HW Dev-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	0.408	0.254	Nov 2010	0.600	Nov 2011	-		0.600	0.000	1.262	
System Eng-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	1.292	2.723	Nov 2010	-		-		-	0.000	4.015	
Primary HW Dev-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	-	-		0.100	Nov 2011	-		0.100	0.100	0.200	
System Eng-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	-	-		0.650	Nov 2011	-		0.650	0.200	0.850	
System Eng-ALRE Srvc Life Mgnt	WR	NAWCAD:Lakehurst, NJ	-	2.807	Mar 2011	5.200	Nov 2011	-		5.200	16.800	24.807	
System Eng-APSC	WR	NAWCAD:Lakehurst, NJ	-	-		1.900	Nov 2011	-		1.900	1.900	3.800	
		Subtotal	235.497	56.647		34.772		-		34.772	49.714	376.630	

Remarks

Award Fee is 10% of estimated cost of SDD contract.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy		DATE: February 2011
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ILS-AAG	WR	NAWCAD:Lakehurst, NJ	5.757	2.813	Nov 2010	1.505	Nov 2011	-		1.505	2.489	12.564	
ILS-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	0.150	-		-		-		-	0.000	0.150	
ILS-ADMACS BLK 3	WR	NAWCAD:Lakehurst, NJ	-	0.180	Jan 2011	-		-		-	0.483	0.663	
ILS-ALCS	WR	NAWCAD:Lakehurst, NJ	-	0.128	Nov 2010	0.140	Nov 2011	-		0.140	0.000	0.268	
ILS-Swaging Machine	WR	NAWCAD:Lakehurst, NJ	0.010	0.075	Nov 2010	0.075	Nov 2011	-		0.075	0.000	0.160	
ILS-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	-	0.300	Nov 2010	0.500	Nov 2011	-		0.500	0.275	1.075	
ILS-Modern IMOVLAS	WR	NAWCAD:Lakehurst, NJ	-	-		0.050	Nov 2011	-		0.050	0.300	0.350	
ILS-ALRE Service Life Mgnt	WR	NAWCAD:Lakehurst, NJ	-	0.200	Mar 2011	0.200	Nov 2011	-		0.200	0.600	1.000	
ILS-APSC	WR	NAWCAD:Lakehurst, NJ	-	-		0.200	Nov 2011	-		0.200	0.200	0.400	
		Subtotal	5.917	3.696		2.670		-		2.670	4.347	16.630	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Test & Eval-AAG	WR	NAWCAD:Lakehurst, NJ	8.541	2.221	Nov 2010	0.816	Nov 2011	-		0.816	1.371	12.949	
Operational T&E-AAG	WR	Various:Various	1.120	0.222	Dec 2010	0.230	Dec 2011	-		0.230	2.300	3.872	
Facility Test-JCTS/RALS AAG	WR	NAWCAD:Lakehurst, NJ	2.799	5.333	Nov 2010	5.704	Nov 2011	-		5.704	9.650	23.486	
Dev Test Lab-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	0.450	-		-		-		-	0.000	0.450	

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Test-ADMACS BLK 2	WR	NAWCAD:Lakehurst, NJ	0.133	0.102	Nov 2010	-		-		-	0.000	0.235	
Dev Test & Eval-EMALS Tech Insert	WR	NAWCAD:Lakehurst, NJ	-	0.113	Nov 2010	0.115	Nov 2011	-		0.115	0.707	0.935	
Dev Test & Eval-ALCS	WR	NAWCAD:Lakehurst, NJ	-	-		0.050	Nov 2011	-		0.050	5.960	6.010	
Dev Test & Eval-Modern IFLOLS	WR	NAWCAD:Lakehurst, NJ	-	0.200	Nov 2010	0.500	Nov 2011	-		0.500	0.000	0.700	
Performance Testing-Swaging Machine	WR	NAWCAD:Lakehurst, NJ	0.150	1.378	Nov 2010	0.375	Nov 2011	-		0.375	0.000	1.903	
		Subtotal	13.193	9.569		7.790		-		7.790	19.988	50.540	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prgm Mgnt Supt	C/CPFF	Sierra:California, MD	0.675	0.160	Dec 2010	0.163	Dec 2011	-		0.163	0.000	0.998	1.534
Travel	Reqn	NAVAIR:Pax River, MD	0.627	0.045	Nov 2010	0.050	Nov 2011	-		0.050	0.000	0.722	
		Subtotal	1.302	0.205		0.213		-		0.213	0.000	1.720	

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	255.909	70.117		45.445		-		45.445	74.049	445.520	

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ADVANCED ARRESTING GEAR (AAG)				
Aquisition Milestones: Milestones: Milestone C	2	2013	2	2013
Systems Development: Hardware Development: System Design & Development (SDD Phase)	1	2010	1	2013
Systems Development: Reviews/Assessments: Integrated Logistic Assessment (ILA)	4	2012	4	2012
Systems Development: Reviews/Assessments: Physical Configuration Assessment (PCA)	3	2015	3	2015
Systems Development: Reviews/Assessments: Techincal Readiness Review (TRR1) JCTS Equipment Commissioning	1	2010	1	2010
Systems Development: Reviews/Assessments: Letter of Observation (LOO) for ERT1	1	2010	1	2010
Systems Development: Reviews/Assessments: Technical Readiness Review (TRR2A) JCTS Commissioning Deadload	2	2011	2	2011
Systems Development: Reviews/Assessments: Technical Readiness Review (TRR) RALS	3	2012	3	2012
Test & Evaluation: Technical Evaluation: Integration Testing (ITB1)	1	2010	2	2010
Test & Evaluation: Technical Evaluation: Jet Car Test Site (JCTS) Test	1	2010	1	2012
Test & Evaluation: Technical Evaluation: IT B3	1	2010	1	2012
Test & Evaluation: Technical Evaluation: Environmental Qualification Test (EQT)	4	2010	3	2012
Test & Evaluation: Technical Evaluation: IT B5	4	2010	3	2012
Test & Evaluation: Technical Evaluation: Extended Reliability Testing (ERT2)	3	2012	2	2013
Test & Evaluation: Technical Evaluation: IT B2B	3	2012	2	2013
Test & Evaluation: Technical Evaluation: Runway Arrested Landing Site Test (RALS)	4	2012	1	2013
Test & Evaluation: Technical Evaluation: IT B4	4	2012	1	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test & Evaluation: Technical Evaluation: Integrated Testing (ITC1)	1	2013	4	2015
Test & Evaluation: Technical Evaluation: Shipboard Test	3	2013	4	2013
Test & Evaluation: Technical Evaluation: JCTS Development Test Report (DTR)	2	2012	2	2012
Test & Evaluation: Technical Evaluation: RALS Development Test Report (DTR)	2	2013	2	2013
Production Milestones: Contract Award: Low Rate Initial Production (LRIP) OPN	2	2013	2	2013
Production Milestones: Deliveries: Low Rate Initial Production (LRIP) OPN Qty 3	4	2014	4	2014
AVIATION DATA MANAGEMENT & CONTROL SYSTEM (ADMACS) BLK 3				
Systems Development: Software and Hardware Design: Development Phase	1	2011	4	2013
Systems Development: Reviews: Preliminary Design Review (PDR)	2	2011	2	2011
Systems Development: Reviews: Critical Design Review (CDR)	4	2011	4	2011
Systems Development: Reviews: Test Readiness Review (TRR)	3	2012	3	2012
Test & Evaluation: Technical Evaluation: Design, Development, Integration & Formal Testing (DDI&FT)	1	2012	4	2013
EMALS TECHNOLOGY INSERTION (EMALS)				
System Development: Hardware/Software Development: System Development and Testing	1	2011	4	2016
System Development: Reviews: Critical Design Review (CDR)	4	2012	4	2012
System Development: Reviews: Test Readiness Review (TRR)	4	2014	4	2014
ADVANCED LAUNCH CONTROL SYSTEM (ALCS)				
Acquisition Milestones: Milestones: Milestone B	4	2015	4	2015
Systems Development: Hardware/Software Development: Requirements Analysis & Trade Studies	1	2011	4	2013
Systems Development: Hardware/Software Development: Algorithm Analysis	2	2011	2	2011
Systems Development: Hardware/Software Development: RDT&E Contract Award	3	2014	3	2014
Systems Development: Hardware Design and Integration: Hardware Design	3	2014	1	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 2232: *CV/CVN Launch and Recover*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Development: Hardware Design and Integration: Hardware Integration	1	2015	3	2016
Systems Development: Software Design: Software Design	3	2014	1	2016
Systems Development: Software Design: Algorithm Development	3	2014	2	2015
Systems Development: Reviews: System Requirement Review (SRR) Government Only	1	2012	1	2012
Systems Development: Reviews: System Requirement Review (SRR 2) Industry	3	2014	3	2014
Systems Development: Reviews: System Functional Review (SFR)	4	2014	4	2014
Systems Development: Reviews: Inital Baseline Review (IBR)	1	2015	1	2015
Systems Development: Reviews: Preliminary Design Review (PDR)	3	2015	3	2015
Systems Development: Reviews: Critical Design Review (CDR)	1	2016	1	2016
COMPACT SWAGING MACHINE (CSM)				
Systems Development: Hardware Development: Prototype Build	2	2010	3	2010
Systems Development: Hardware Development: Incorporate Design Mods (IDM)	4	2010	4	2010
Systems Development: Reviews: Post Performance & Acceptance CDR	1	2013	1	2013
Systems Development: Reviews: Program Readiness Review (PRR)	2	2013	2	2013
Systems Development: Reviews: Configuration Control Board (CCB)	3	2013	3	2013
Systems Development: Development Deliveries: Deliver Test Unit	1	2011	1	2011
Test and Evaluation: Technical Evaluation: Functional Testing	4	2010	4	2010
Test and Evaluation: Technical Evaluation: Performance Testing	1	2011	3	2011
Test and Evaluation: Technical Evaluation: Electromagnetic Interference (EMI) Shock/ Environmental Test	2	2011	2	2011
Test and Evaluation: Technical Evaluation: Shipboard Test & Eval	2	2012	4	2012
ALRE MODERNIZATION-Improved Fresnel Lens Optical Landing Sys (IFLOLS)				
Systems Development: Review: Critical Design Review (CDR)	2	2011	2	2011
Systems Development: Review: Test Readiness Review (TRR)	3	2011	3	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	**R-1 ITEM NOMENCLATURE** PE 0604512N: *Shipboard Aviation Systems*	**PROJECT** 2232: *CV/CVN Launch and Recover*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Development: Review: Configuration Control Board (CCB)	4	2014	4	2014
Test and Evaluation: Technical Evaluation: Integrated Test	3	2011	4	2014
ALRE MODERNIZATION - Improved Manually Operated Visual Landing Aide Sys (IMOVLAS)				
Systems Development: Review: Critical Design Review (CDR)	3	2012	3	2012
Systems Development: Review: Test Readiness Review (TRR)	1	2013	1	2013
Systems Development: Review: Configuration Control Board (CCB)	4	2013	4	2013
Test and Evaluation: Technical Evaluation: Integrated Test	1	2013	3	2013
ALRE SERVICE LIFE MANAGEMENT PROGRAM (SLMP)				
Systems Development: Hardware/Software Development: Engineering Analysis	1	2011	4	2014
Systems Development: Hardware/Software Development: Design Development	4	2012	4	2016
ADVANCED PROGNOSTICS FOR STEAM CATAPULTS (APSC)				
Systems Development: Hardware/Software Development: Development and Testing	1	2011	4	2013
Systems Development: Hardware/Software Development: Detail Design	1	2012	4	2012
Systems Development: Review: Critical Design Review (CDR)	1	2013	1	2013
Systems Development: Review: Technical Readiness Review (TRR1) (Shorebased)	1	2013	1	2013
Systems Development: Review: Technical Readiness Review (TRR2) (Shipboard)	3	2013	3	2013
Test & Evaluation: Technical Evaluation: Land-Based Test	1	2013	2	2013
Test & Evaluation: Technical Evaluation: Shipboard Test	3	2013	4	2013

Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0604512N: *Shipboard Aviation Systems*	PROJECT 9999: *Congressional Adds*	

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
9999: *Congressional Adds*	1.195	-	-	-	-	-	-	-	-	0.000	1.195
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Congressional Adds

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011
Congressional Add: Voyage Repair Team Tool Management	1.195	-
FY 2010 Accomplishments: Design & develop an integrated Tool Control System within the Voyage Repair Team (VRT) organizations. This will reduce cost, improve work efficiency, and improve the availability of Aircraft Launch & Recovery (ALRE) in support of the Fleet's mission.		
Congressional Adds Subtotals	1.195	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not required for Congressional Adds

E. Performance Metrics

Not required for Congressional Adds