CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**					R-1 ITEM NOMENCLATURE PE 0205633N / Aviation Improvements			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost		**38.878**	**68.552**	**62.635**	**68.847**	**67.305**	**61.895**	**62.370**
W0601 Common Ground Equipment		**3.614**	**3.131**	**2.664**	**2.983**	**3.024**	**3.103**	**3.158**
W0852 Consolidated Automated Support System (CASS)		**6.284**	**6.370**	**5.456**	**6.722**	**6.817**	**6.963**	**7.097**
W1041 A/C Equip Reliability/Maintainability Improvement Program		**0.595**	**1.431**	**2.079**	**3.008**	**3.107**	**2.358**	**2.867**
W1355 Aircraft Engine Component Improvement Program (CIP)		**28.385**	**48.473**	**52.436**	**56.134**	**54.357**	**49.471**	**49.248**
W9109 Aircraft Exploration Model Development			**3.708**					
W9426 Automated Wire Analysis			**2.967**					
H9427 Digital Integrated Cockpit Display			**0.989**					
W9428 Navair Technology Commercialization			**1.483**					

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

W0601 - Common Ground Equipment is a Naval Aviation Project to apply new technology to common support equipment necessary to support multiple aircraft. W0582 - Consolidated Automated Support System (CASS) is a standardized Automated Test Equipment (ATE) with computer assisted, multi-function capabilities to support the maintenance of aircraft subsystems and missiles. W1041 - Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP) is the only Navy program that provides engineering support for in-service out-of-production aircraft equipment, and provides increased readiness at reduced operational and support cost. W1355 - Aircraft Engine Component Improvement Program (CIP) develops reliability and maintainability (R&M) and safety enhancements for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, fuel systems , fuels, and lubricants. W9109 - Aircraft Age Exploration Model for Naval Aircraft platforms. The model will use existing Naval Aircraft data to establish connections between age and reliabilty, maintainability, and readiness and will provide the Navy with a valuable tool for understanding, predicting, and communicating impacts of decisions to extend aircraft service lives and for mitigating risks associated with these decisions. This is a continuation of efforts initiatied in FY02 to add enhanced functionallity to include automatic identification of reliability degredation items and automatic tracking of actuals against model generated predictions. W9426 - Current practices have technicians perform electrical testing on aircraft using both manual and automated methods. Once a short or open is found using existing test equipment, the technician must then find the physical location of the fault, one wire at a time, using pin-to-pin tests with handheld multi-meters and visual inspection. This generally involves at least two individuals connecting leads to each end of a wire to be tested. This is a slow process and reactive in nature. New commercial technology that incorporates Standing Wave Reflectometry (SWR) can proactively identify all hard faults (e.g. shorts and opens) of wiring malfunctions from a single end wire test, verify system modifications, and localize aircraft wiring malfunctions to within inches. This capability does not exist in the U.S. Navy today. A single wiring analyzer can serially test up to 1,152 wires at a time and the system can be expanded to test up to a maximum of 128,000 test points. This effort is to develop, validate and qualify this capability for Naval Avaition applications.

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification	DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**	R-1 ITEM NOMENCLATURE PE 0205633N / Aviation Improvements

H9427 - The TH-57 Helicopter is the Navy's only primary helicopter pilot training platform, and is expected to remain in that capacity until 2025. All Navy fleet helicopters will have digital cockpits by 2012. To remain viable as an effective training platform, which meets the training requirements of an all digital helicopter fleet, the TH-57 cockpit can best utilize a digital design to effect greater aircraft training utilization. Research and Development funds will be utilized to produce a product that keeps pace with the rapidly changing fleet helicopter pilot training requirements and provides increased hard landing/crash and exceedence warning system protection to aircrews. The following areas will be explored Requirement Analysis, Cost Estimation, Crew Systems/Human System Integration, Logistics Support Analysis, and Aircraft Integration. W9428 - The NAVAIR Technology Commercialization Initiative is an effort to transition commercial technology for Naval Avaition Applications.

(U) JUSTIFICATION FOR BUDGET ACTIVITY:

This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it encompasses engineering and manufacturing development for upgrade of existing, operational systems.

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **FEBRUARY 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W0601 Common Ground Equipment			
COST ($ in Millions)		FY 2003	FY 2004	*FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**3.614**	**3.131**	**2.664**	**2.983**	**3.024**	**3.103**	**3.158**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Common Ground Equipment is a Naval Aviation Project to apply new technology to common support equipment necessary to support multiple systems/aircraft within the Navy. The common support equipment items developed with this budget is briefed to the Air Force, Army and Coast Guard for possible use in joint procurement in the production phase.

The items procured with this budget are new technology items that are required to meet fleet aircraft requirements in both testing and loading of aircraft systems.

*$0.3M was identified in the prior years to forward finance future year requirements and the corresponding reduction was made in FY 2005.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0601 Common Ground Equipment

B. Accomplishments/Planned Program

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				0.080
RDT&E Articles Quantity				

Turboprop Engine Test Instrumentation (TETI) The Turboprop Engine Test Instrumentation (TETI) program objective is to provide an integrated computer based measurement and automation system for Intermediate Maintenance level testing of Navy/Marine Turboprop engines. The acquisition approach is to develop, acquire, validate, deploy and support production configurations of TETI and Test Program Sets (TPS), utilizing the existing Jet Engine Test Initiative (JETI) technology, and integrate this capability into existing land based engine test systems. This enhanced capability will allow for full performance engine testing of the T56 Series Turboprop engines. An ECP will be developed to upgrade the existing engine test systems

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.951	2.781	2.584
RDT&E Articles Quantity				

Next Generation Munitions Handler (NGMH) - R&D program to develop robotic weapons loader for both ship and shore with primary focus on targeting future weapons and aircraft. Plan is to support CVNX initiatives and to back-fit current CVs and amphibious ships. Utilize technology features developed under NGMH program.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.663	0.350	
RDT&E Articles Quantity				

Shaft Engine Test Instrumentation (SETI) Program objective is to provide an integrated computer based measurement and automation system for Intermediate Maintenance level testing of Navy/Marine Turbo shaft engines. The acquisition approach is to develop, acquire, validate, deploy and support production configurations of SETI and Test Program Sets (TPS), utilizing the existing Jet Engine Test Initiative (JETI) technology, and integrate this capability into existing land based (A/E372T-24) and (A/F37T-16) engine test systems. This enhanced capability will allow for full performance engine testing of the T58, T64, and T700 Turbo shaft engines. An ECP will be developed to upgrade the existing engine test systems.

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0601 Common Ground Equipment

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	3.361	3.166	2.660
Current BES/President's Budget	3.614	3.131	2.664
Total Adjustments	0.253	-0.035	0.004
Summary of Adjustments			
SBIR/STTR Transfer	-0.035		
Reprogrammings	0.288		
Congressional Undistributed Reductions		-0.035	
Economic Assumptions			0.004
Subtotal	0.253	-0.035	0.004

Schedule:

Milestone A and the prototype phase slipped due to testing issues during Small Business Innovation Research Phase.

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements	PROJECT NUMBER AND NAME W0601 Common Ground Equipment

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
APN 070500 Ground Support Equipment	159.809	194.976	217.688	196.983	189.255	184.192	174.304	Continuing	Continuing
Related RDT&E: Not Applicable									

E. ACQUISITION STRATEGY:

This is a non-ACAT program. Field activities propose tentative RDT&E projects. Internal panel merits and selects projects. Field activities develop projects and submit results. Operational Advisory Group (OAG) process selects projects to transition to procurement.

F. MAJOR PERFORMERS:

Not Applicable

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0601 Common Ground Equipment						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various	Various	12.837	1.787	02/03	2.305	12/03	1.899	03/05	Continuing	Continuing	
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering	Various	Various				0.466	12/03	0.400	03/05	Continuing	Continuing	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			12.837	1.787		2.771		2.299		Continuing	Continuing	
Remarks:												
Development Support	Various	Various	4.139	1.777	02/03	0.035	12/03	0.030	12/04	Continuing	Continuing	
Software Development												
Integrated Logistics Support	Various	Various				0.060	12/03	0.060	12/04	Continuing	Continuing	
Configuration Management												
Technical Data												
Studies & Analyses	Various	Various				0.030	12/03	0.030	12/04	Continuing	Continuing	
GFE												
Award Fees												
Subtotal Support			4.139	1.777		0.125		0.120		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0601 Common Ground Equipment							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
DT&E - SETI	Various	Various	1.034	0.050	02/03						1.084	
DT&E - NGMH	Various	Various				0.060	12/03			Continuing	Continuing	
DT&E - TETI	Various	Various						0.080	12/04	Continuing	Continuing	
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			1.034	0.050		0.060		0.080		Continuing	Continuing	
Remarks:												
Contractor Engineering Support	Various	Various				0.025	12/03	0.025	12/04	Continuing	Continuing	
Government Engineering Support	Various	Various				0.060	12/03	0.050	12/04	Continuing	Continuing	
Program Management Support	Various	Various				0.075	12/03	0.075	12/04	Continuing	Continuing	
Travel	Various	Various				0.015	12/03	0.015	12/04	Continuing	Continuing	
Transportation												
SBIR Assessment												
Subtotal Management			0.000	0.000		0.175		0.165		Continuing	Continuing	
Remarks:												
Total Cost			18.010	3.614		3.131		2.664		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **FEBRUARY 2004**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0601 Common Ground Equipment

Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones NGMH							MS A △								MS B △								MS C △							
Prototype Phase							▭																					
Radar System Development																												
EDM Radar Delivery																												
Software 1XXSW Delivery 2XXSW Delivery																												
Test & Evaluation Milestones NGMH Development Test															Developmental Testing ▭													
Operational Test																	Operational Testing ▭											
Production Milestones NGMH LRIP FY 07																	LRIP ▭											
FRP FY 09																									FRP Start △			
Deliveries NGMH																						LRIP (3) △						

R-1 SHOPPING LIST - Item No. 179

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: FEBRUARY 2004		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-7**	PROGRAM ELEMENT 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W0601 Common Ground Equipment			
Schedule Profile NGMH		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase		3Q-4Q	1Q-4Q	1Q-2Q				
Milestone A		3Q						
Developmental Testing				3Q-4Q	1Q-4Q			
Milestone B				4Q				
Operational Testing						1Q-4Q	1Q	
Start Low-Rate Initial Production (LRIP)						1Q-4Q	1Q-2Q	
Milestone C							1Q	
Low-Rate Initial Production I Delivery							2Q	
Full Rate Production Start								1Q

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **FEBRUARY 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005*	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**6.284**	**6.370**	**5.456**	**6.722**	**6.817**	**6.963**	**7.097**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Consolidated Automated Support System (CASS) project designs and develops modular automated test equipment with computer-assisted, multi-function test capability, standardized hardware, and standard software elements. CASS responds to Fleet Commanders' expressed requirements to correct serious deficiencies in existing automatic test equipment. Program objectives are: (1) increase material readiness; (2) reduce life cycle costs; (3) improve tester sustainability at depot and intermediate maintenance levels; (4) reduce proliferation of unique test equipment, and (5) provide test capability for existing and emerging avionics/electronics systems.

Technologies being developed include synthetic instruments, new ATFLIR electro-optics capability, multi-analog test capability to enable functional testing, and CASS station modernization elements.

* $1.2M was identified in prior years which could forward finance future year requirements and the corresponding adjustment was made in FY 2005.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0852 Consolidated Automated Support System

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		3.215		
RDT&E Articles Quantity				

Synthetic Instrument Package
Provides for development, integration and test of a package of synthetic instruments which will enable the replacement of several discrete test instruments with synthetic instruments. Objectives are significantly improve technical performance, ameliorate obsolescence, lower ownership costs of CASS, and reduce footprint.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		3.069	0.400	1.000
RDT&E Articles Quantity				

CASS Station Upgrades
Provides technologies for upgrading CASS station test capability to test emerging weapon system requirements. Includes development of an inertial reference capability to facilitiate support of Inertial Measurement Systems as well as modifications to the design of RTCASS necessitated by technical problems encountered during DT&E.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			2.400	0.659
RDT&E Articles Quantity				

Electro-Optic capability
Develops a downsized electro-optic support system to enable RTCASS to provide support for Marine Air FLIR and LASER Targeting system**s.**

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0852 Consolidated Automated Support System

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			3.570	3.797
RDT&E Articles Quantity				

CASS Modernization development
Develops and integrates the technologies that will comprise the Modernization Program for the early lots of CASS stations which will be modernized and updated to current testing technologies while maintaining full compatibility with the legacy test program sets.

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0852 Consolidated Automated Support System

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	6.594	6.442	6.390
Current BES/President's Budget	6.284	6.370	5.456
Total Adjustments	-0.310	-0.072	-0.934
Summary of Adjustments			
SBIR/STTR Transfer	-0.095		
Reprogrammings	-0.215		
Congressional Undistributed Reductions		-0.072	
Other Adjustments			-0.941
Economic Assumptions			0.007
Subtotal	-0.310	-0.072	-0.934

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0852 Consolidated Automated Support System

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
APN 070500 CASS	86.756	91.699	76.574	86.364	88.291	90.413	92.186	Continuing	Continuing
Related RDT&E: Not Applicable									

E. ACQUISITION STRATEGY:

Formal test technology reviews with industry are conducted annually (cooperative Joint Services initiative) to define maturity of needed technologies. Further studies are conducted as needed. Procurement strategy is determined by market survey and cooperative opportunities. Synthetic Instrument Package (SIP) program leverages on a Joint Services initiative with Boeing. Boeing competitively selects the SIP supplier.

F. MAJOR PERFORMERS:

TBD

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Hardware Development - SI	Various	Various	6.517	2.906	03/03					Continuing	Continuing	
Hardware Development - Upgrades	Various	Various	20.652	3.054	Various	0.400	Various	0.750	Various	Continuing	Continuing	
Hardware Development - EO	FFP	LKE				2.400	12/03	0.600	02/05	Continuing	Continuing	
Hardware Development - Mod	FFP	LKE				2.070	Various	2.847	Various	Continuing	Continuing	
Ship Suitability												
Systems Engineering												
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			27.169	5.960		4.870		4.197		Continuing	Continuing	
Remarks:												
Development Support - SI	TBD	TBD					Various			Continuing	Continuing	
Development Support - Upgrades	TBD	TBD				0.250	Various	0.250	Various	Continuing	Continuing	
Development Support - EO	TBD	TBD				0.500	Various	0.059	Various	Continuing	Continuing	
Development Support - Mod	TBD	TBD				0.400	Various	0.600	Various	Continuing	Continuing	
Technical Data												
Studies & Analyses												
GFE												
Award Fees												
Subtotal Support			0.000	0.000		1.150		0.909		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **FEBRUARY 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
DT&E												
DT&E												
DT&E												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support												
Travel			0.300	0.324	12/02	0.350	12/03	0.350	12/04	Continuing	Continuing	
Transportation												
SBIR Assessment												
Subtotal Management			0.300	0.324		0.350		0.350		Continuing	Continuing	
Remarks:												
Total Cost			27.469	6.284		6.370		5.456		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																															DATE: **FEBRUARY 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**									PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements												PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																																
Synthetic Instruments Contract Award		▲																														

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **FEBRUARY 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-7**	PROGRAM ELEMENT 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W0852 Consolidated Automated Support System			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Synthetic Instruments Contract Award	2Q							

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N, Aviation Improvements				PROJECT NUMBER AND NAME W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**0.595**	**1.431**	**2.079**	**3.008**	**3.107**	**2.358**	**2.867**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

AERMIP is the only Navy program which provides Research, Development, Test & Evaluation (RDT&E) engineering support specifically for in-service, out-of-production aircraft equipment. AERMIP increases readiness through Reliability and Maintainability (R&M) and safety improvements to existing systems and equipment installed in Naval aircraft. It also provides a transition vehicle to deploy Total Ownership Cost (TOC) reduction initiatives through flight-test support and Fleet Test & Evaluation. It meets affordable readiness objectives by providing a cost-effective solution to obsolescence problems encountered when service lives are extended. AERMIP promotes commonality and standardization across aircraft platform lines and among the services through extension of application and use of non-developmental items. AERMIP also decreases life cycle costs through reduced operational and support costs. AERMIP facilitates the Operational, Safety and Improvement Program by applying proven low-risk solutions to current fleet problems. AERMIP also funds high priority flight testing which is not associated with any acquisition or development program under the Flight Test General (FTG) task.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	0205633N, Aviation Improvements	W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.214	0.000	0.000
RDT&E Articles Quantity				

Aircraft Canopy Crazing Mitigation
Canopies on navy aircraft craze much more rapidly than the counterparts in the Air Force and commercial aviation. This effort addressed the interactions of the canopy materials, the Navy (salt water) enviornment and the chemicals used to clean and maintain the canopies to determine the mechanisms responsible for the premature crazing. The deliverable was a report detailing the finding and changes to the maintenance practices as requried to increase the life of the canopies.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.081	0.152	0.403
RDT&E Articles Quantity				

Investigate High Value Return on Investment Candidates
Opportunities and issues arise yearly that demand immediate attention to provide significant benefit or to avert an unanticiapted problem. AERMIP actively pursues these issues and opportunities and responds quickly to implement a solution. Products are a qualified material or piece of equipment and the procedures/process required for its implementation.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.150	0.300	0.335
RDT&E Articles Quantity				

Corrsion Barriers Tapes and Films
Over the last decade a number of barrier protection products (Applique', Av DEC, Gore gaskets, etc...) have been developed claiming significant improvement in corrosion protection while also promising reduced maintenance burden to maintain. Individual products have been investigated but no efforts have been made to comparatively test the family of products to determine the best products and practices. This effort will result in quantifiable assessment of the current state of the art and the required validation for the best of breed to be implemented into the fleet as the best practice. Effort follows and compliments recently completed effort on corrosion preventative compounds and continues the efforts for a complete corrosion protection plan.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	0205633N, Aviation Improvements	W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.150	0.300	0.000
RDT&E Articles Quantity				

Arc Fault Circuit Breaker
The previous tests installed six arc fault circuit breakers (AFCB) after testing the AFCB at Naval Air Station (NAS) Patuxent River for shock, vibration, electrical, electromagnetic interference (EMI), temperature and altitude. The AFCB were flown in the C-9B aircraft for six months accumulating over 300 flights and over 500 flight hours. However, no system level tests for AFCB were performed. This effort is to install approximately 80 - 115 volt, 400 Hz single phase AFCB on a C-9 Cargo/Transport aircraft to prevent arcing faults from starting fires. The test would show that on a commercial jet aircraft that the AFBC would work through system level Electro Magnetic Compatability (EMC) and lighting events.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.359	0.460
RDT&E Articles Quantity				

ASQ-208
Project will flight test and qualify a digital magnetic abnomality detector (MAD) to replace the current poor performing MAD. New equipment will reduce the number of sub-assemblies from 13 to 4 and reduce the space, weight and power consumption required by the old unit.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.320	0.535
RDT&E Articles Quantity				

APN-202 Improvement Program
Perform validation/verification of replacement APN-202 system

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N /	0205633N, Aviation Improvements	W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)

B. Accomplishments/Planned Program (Cont.)

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.000	0.346
RDT&E Articles Quantity				

Smart Wire
Effort will validate and transition Office of Naval Research (ONR) funded technology development by conducting full aircraft flight test and developing plans and procedures for fleet wide implementation.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
FY 2004 President's Budget	0.606	1.447	2.078
FY 2005 President's Budget	0.595	1.431	2.079
Total Adjustments	-0.011	-0.016	0.001
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		0.016	
Congressional rescissions			
SBIR/STTR Transfer			
Economic Assumptions			0.001
Reprogrammings	-0.011		
Other Adjustments			
Congressional increases			
Subtotal	-0.011	0.016	0.001

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

Related RDT&E:
0205633N, Aircraft Exploration Model Development, W9109
0205633N, Automated Wire Analysis, W9426
0205633N, NAVAIR Technology Commercialization, W9428

E. ACQUISITION STRATEGY:

Not applicable

F. MAJOR PERFORMERS:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N, Aviation Improvements			PROJECT NUMBER AND NAME W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development												
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering												
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Development Support												
Software Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
Studies & Analyses	WX	NAWCAD Patuxent River, MD	8.659	0.412	10/02	1.251	10/03	1.859	10/04	Continuing	Continuing	
GFE												
Award Fees												
Subtotal Support			8.659	0.412		1.251		1.859		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N, Aviation Improvements				PROJECT NUMBER AND NAME W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation												
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support	ss/cpff	Raytheon, Indianapolis, IN	0.720	0.090	11/02	0.090	11/03	0.090	11/04	0.900	1.890	1.890
Contractor Engineering Support	ss/cpff	Eagle Systems, Patuxent River,	0.000	0.043	11/02						0.043	0.043
Program Management Support	WX	NAWCAD, Patuxent River, MD		0.040	10/02	0.080	10/03	0.120	10/04	Continuing	Continuing	
Travel	WX	NAWCAD, Patuxent River, MD		0.010	10/02	0.010	10/03	0.010	10/04	Continuing	Continuing	
Transportation												
SBIR Assessment												
Subtotal Management			0.720	0.183		0.180		0.220		Continuing	Continuing	
Remarks:												
Total Cost			9.379	0.595		1.431		2.079		Continuing	Continuing	
Remarks:												

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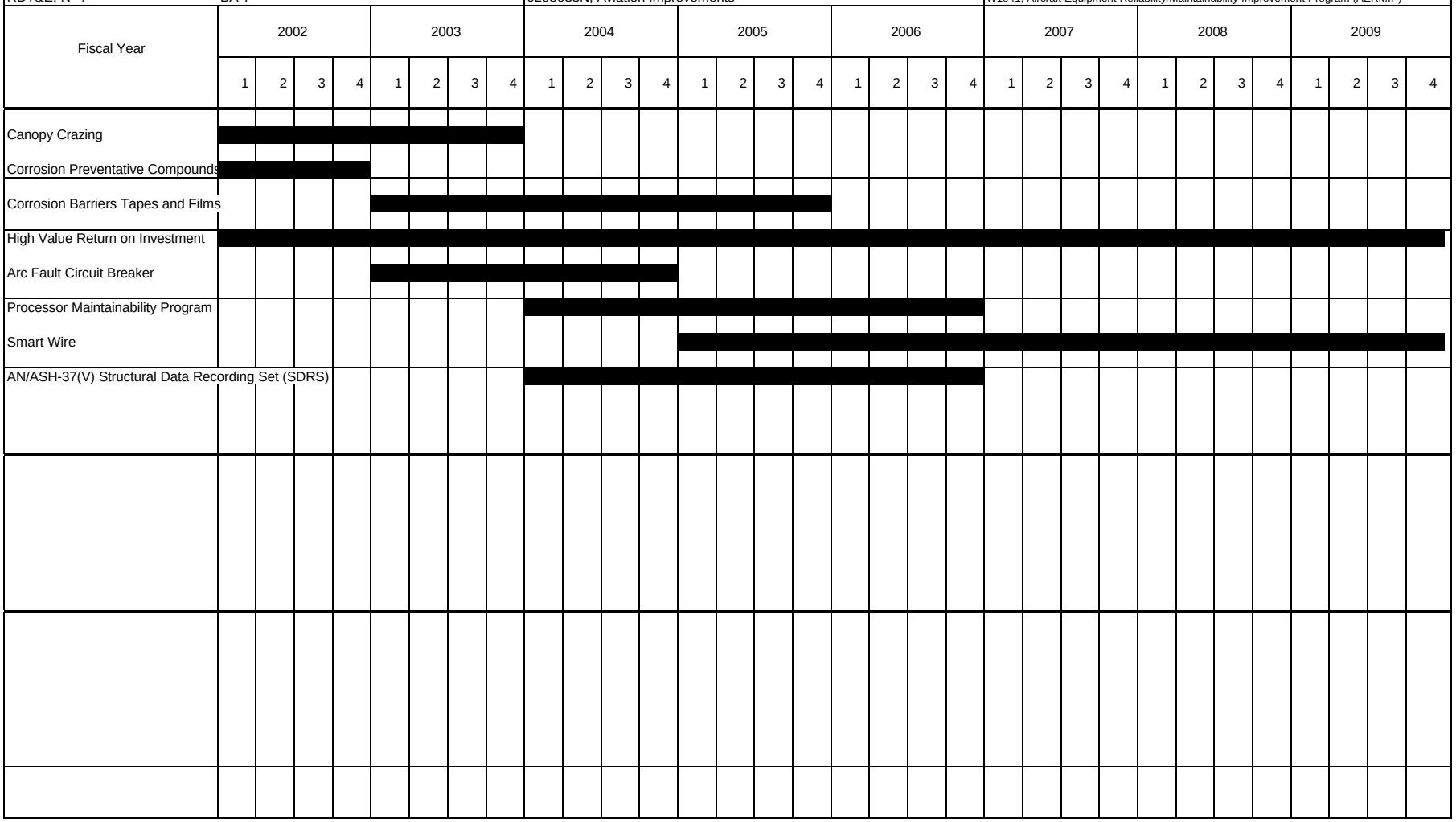
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: February 2004

APPROPRIATION/BUDGET ACTIVITY: RDT&E, N / BA-7

PROGRAM ELEMENT NUMBER AND NAME: 0205633N, Aviation Improvements

PROJECT NUMBER AND NAME: W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)



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* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0205633N, Aviation Improvements				PROJECT NUMBER AND NAME W1041, Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Canopy Crazing	Q1-Q4	Q1-Q4						
Corrosion Preventative Compounds	Q1-Q4							
Corrosion Barriers Tapes and Films		Q1-Q4	Q1-Q4	Q1-Q4				
High Value Return on Investment	Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4
Arc Fault Circuit Breaker		Q1-Q4	Q1-Q4					
Processor Maintainability Program			Q1-Q4	Q1-Q4	Q1-Q4			
Smart Wire				Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4	Q1-Q4
AN/ASH-37(V) Structural Data Recording Set (SDRS)			Q1-Q4	Q1-Q4	Q1-Q4			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		**28.385**	**48.473**	**52.436**	**56.134**	**54.357**	**49.471**	**49.248**
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical design and development engineering support to resolve safety, reliability and maintainability deficiencies of in-service Navy aircraft propulsion systems. The highest priority issues CIP addresses concern safety-of-flight deficiencies which account for approximately 80% of CIP efforts. The program also corrects service-revealed deficiencies, improves Operational Readiness (OR) and Reliability and Maintainability (R&M), and reduces platform Life Cycle Cost (LCC). Budgets are allocated across platform-specific teams and multi-platform product support teams based upon long term strategies to achieve safety and affordable readiness goals; the R-3 exhibit details annual portions of those long-term plans. CIP tasks have reduced the rate of in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. This is accomplished through the maintenance and validation of specification performance, testing to qualify engineering changes, verifying life limits, and improving the inherent reliability of the propulsion system as an integral part of Reliability Centered Maintenance (RCM) initiatives. Historically, the missions, tactics, and environmental exposure of military aircraft systems change to meet new threats or operational demands, and often result in unforeseen problems, which if not corrected, can cause critical safety/readiness degradation, such as those experienced during DESERT SHIELD/DESERT STORM operations due to sand erosion. In addition, new problems arise through actual use during deployment of the aircraft. Development programs, while geared to resolve as many problems as possible before deployment, cannot duplicate actual operations or account for the vast array of environmental and usage variables, particularly when aircraft missions vary from those the aircraft was designed to perform. Therefore, it has been found that CIP can provide an immediate engineering response to these flight-critical problems and accelerated engine testing can avoid potential problems. CIP starts after development and Navy acceptance of the first production article and addresses usage and life problems not covered by warranties. CIP addresses engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, and fuel and lubricant systems. CIP efforts continue over the system's life, gradually decreasing to a minimum level sufficient to maintain the reliability, and decrease the operating costs, of older inventory. CIP is a highly leveraged and cooperative tri-service program with Foreign Military Sales participation.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvmement Program

B. Accomplishments/Planned Program

Platform-Specific Efforts:

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.957	2.228	9.095
RDT&E Articles Quantity				

T56 Engine (P-3, E-2, C-2, C-130)

Implement the Engine Monitory System version 7.0 upgrade. Maintain safety margins by investigating turbine coatings and develop new designs, propeller integration efforts with potential propeller designs, perform engine hot section corrosion and fatigue analysis, and bearing improvements. Analysis of redesign for first stage turbine blades on T56-A-427 engines. Qualification and verification testing of redesigned first stage turbine blades. Resolve service revealed problem. Work on resolving fuel nozzle choking issue. Resolve design problems in the areas of safety coupling, compressor leakage, generator problems, and electrical wiring problems. Mission updates and life analysis of critical components.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.127	0.743	0.440
RDT&E Articles Quantity				

E-2/C-2/C-130

Incorporate improved blade heaters. Develop improved propeller control system.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.756	1.152	0.879
RDT&E Articles Quantity				

S-3

High Pressure Compressor (HPC) life limit implementation. Validation and implementation of High Pressure Turbine (HPT), Low Pressure Turbine (LPT), and Fan critical part life limit changes. Develop Combustion Chamber Frame (CCF) and HPT physics based thermal models. Develop LPT physics based thermal models. Collect engine parameter flight data required to perform updated engine mission analysis. Initiate the development of improved Eddy Current (EC) inspection techniques for small holes and specific features. Analyze and correlate HPC EC inspection requirements to critical part Fracture Mechanics (FM) capabilities. Investigate propulsion and power system obsolescence. Conduct engine component and propulsion and power electrical system reliability/maintainability analysis. Conduct commercial critical part hardware commonality analysis.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program

B. Accomplishments/Planned Program

Platform-Specific Efforts:

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		2.331	2.254	6.658
RDT&E Articles Quantity				

Mature Aircraft

Address the top readiness degraders and AVDLR costs; implement efforts on the J52 engine (EA-6B) ASMET test, perform annual maintenance awareness brief and annual P-408A major engine inspection program. Study and implement solutions to aging aircraft issues and future obsolescence problems. Redesign of diffuser case for increased life. Design and analysis efforts on 4.5 bearing problem on J52 engine (EA-6B). Efforts on life analysis and mission verification for critical components. Evaluate new coatings and seals for turbine areas. Begin ASMET of Pratt Wittney Associates.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.613	0.524	2.096
RDT&E Articles Quantity				

H-2/H-60

Advanced Helicopter Transmission Lubricant Program, extended transmission component lives, increased readiness by reducing corrosion, Mission Profile Data Collection and Dynamic Component Life Limit efforts. Time on wing and Mean Time Between Removals (MTBR) cost drivers initiatives including compressor durability, Titanium Nitrates (TiN) coating and three-stage turbine. Efforts in the area of engine power loss, secondary power and wiring issues.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.842	6.030	3.728
RDT&E Articles Quantity				

AV-8B

Address top readiness degraders and AVDLR costs; safety of flight issues, engine removal and mission failure drivers, assess life management program issues for engine components. Project included but not be limited to: ASMET testing, support of a Fleet Leader Program, Analytical Condition Insepction (ACI), Engine Life Management Program (ELMP) execution and design fixes for any service revealed deficiencies. LPC 1 vane cracking problems and FMU mod problems. Analysis of ASMET engine test.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program

B. Accomplishments/Planned Program

Platform-Specific Efforts:

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.632	3.511	9.799
RDT&E Articles Quantity		.		

H-53/H-46/H-3

Bleed valve redesign. Efforts on the top cause for engine removals; improv on wing times; addressed top safety concerns as ranked by the Operational Advisory Group (OAG); reliability-centered maintenance program; improv compressor blade retention design; and develop corrosion resistant bearing designs. Improve the mean time between engine removal based upon continued implementation of reliability center maintenance initiatives. Conduct life management analysis to resolve critical rotating component issues based upon engine structural interity assessments and the master life management plan.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.893	2.411	2.346
RDT&E Articles Quantity				

H-1

Address top safety concerns as ranked by the OAG and System Safety Working Group, continue to update Navy maintenance manuals, continue to improve time-between-overhaul and reduced impact of high-time parts (T700 and T400); addressed Blisk, Rear Shaft, Spacer & Tierod Life Update (T700), development of environmentally friendly repairs such as High Velocity OXY fuel coatings to replace chrome and nickel plate repairs; and development of Durability Project (T700-401/-401C), N5 Blades w/ tip cap & Nozzles, T700 TiN Coating (Test Articles, Corrosion/Erosion/Full Sand Engine Testing), T700 Diagnostics Life Mgt Performance Evaluation (IMD), T700 Diagnostics (Performance Evaluation), Durability Project (T700-401/-401C), T700 TiN Coating (Pending Pass/Fail... Incorp TiN), EPAMs Mission Update to 4BN, T700 Diagnostics (Performance Evaluation), T400 Improved Compressor Turbine Stub Shaft, T400 Improved Gas Generator Case Diffuser Inlet, T400 Improved Compressor Coating, T400 Life Management, Study T400 Parts Obsolescence.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.251	0.631	0.598
RDT&E Articles Quantity				

F-14B/D

Address obsolescence of electrical components. High pressure turbine redesign efforts. Address extension of component life and the reduction of maintenance hours. Improvements to propulsion system safety through an active life management program for critical rotating components. Efforts to reduce the engine non-recoverable in-flight shutdown Rate and propulsion system related mission abort rate.

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program

B. Accomplishments/Planned Program

Platform-Specific Efforts:

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			10.964	9.083
RDT&E Articles Quantity				

F-18 C/D/E/F

Address top safety issues, readiness degraders, and AVDLR costs; safety of flight issues; engine removal and mission failure drivers; assess life management program issues for engine components. Analysis and redesign of fuel nozzles and control system to resolve sub idle flameout issues. Analysis of combustion linear to determine cause for durability problems. Analysis and redesign of components with service revealed deficiencies.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		1.541	3.027	1.220
RDT&E Articles Quantity				

T-45

Address top safety issues reported from fleet. Analysis and redesign components with service revealed deficiencies.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		15.442	14.998	6.494
RDT&E Articles Quantity				

Multi-Platform Product Support Teams

Projects designed to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improve products and processes for fuels, lubricants, and refueling equipment; improve blade and vane repair processes and life cycle support; and improve electrical system product support, wiring, and battery systems.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget	29.367	49.018	43.303
Current BES/President's Budget	28.385	48.473	52.436
Total Adjustments	-0.982	-0.545	9.133
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.545	
Congressional rescissions			
SBIR/STTR Transfer	-0.442		
Economic Assumptions			-0.097
Reprogrammings	-0.540		
Other Adjustments			9.230
Subtotal	-0.982	-0.545	9.133

Schedule: Not applicable

Technical: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W1355 Aircraft Engine Component Improvement Program

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

PE 0203752A (Aircraft Engine CIP Army)
PE 0207268F (Aircraft Engine CIP Air Force)
PE 0602236N (Turbine Engine Improvement, TOC FNC)
PE 0603236N (Turbine Engine Improvement, TOC, FNC)
PE 0602114N (UAV Propulsion Autonomous Operations FNC)
PE 0603114N (UAV Propulsion Autonomous Operations FNC)

E. ACQUISITION STRATEGY:

Not applicable

F. MAJOR PERFORMERS:

R-1 SHOPPING LIST - Item No. 179

Exhibit R-3 Cost Analysis (page 1)												Date: February 2004
RDT&E, N /	**BA-7**	0205633N Aviation Improvements				W1355 Aircraft Engine Component Improvement Program						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Systems Eng F110 Engine Program*	SS/CPAF	GE- OHIO	16.986	0.251	12/02	0.631	12/03	0.598	12/04		18.466	18.466
Systems Eng F402 Engine Program	SS/CPFF	ROLLS ROYCE - UK	25.222	1.842	12/02	6.030	12/03	3.728	12/04		36.822	36.822
Systems Eng F404/T58/T64 Engine Program	SS/CPFF	GE - MASS	32.199	1.632	12/02	3.511	12/03	9.799	10/04		47.141	47.141
Systems Eng J52 Engine Program	SS/CPFF	P&W - FLORIDA	11.506	2.037	12/02	1.503	12/03	5.849	12/04		20.895	20.895
Systems Eng T56 Engine Program	SS/CPFF	INDIANA	7.653	1.957	02/03	2.228	02/04	9.095	02/05		20.933	20.933
Systems Eng F405 Engine Program	SS/CPAF	ROLLS ROYCE - UK	6.692	1.541	01/03	3.027	12/03	1.220	12/04		12.480	12.480
Systems Eng F/A 18E/F Engine Program	SS/CPFF	GE - MASS	0.664			10.964	12/03	9.083	12/04		20.711	20.711
Systems Eng T700 Engine Program	SS/CPFF	GE - MASS	5.841	1.226	01/03	1.048	01/04	4.192	01/05		12.307	12.307
Systems Eng TF34 Engine Program	SS/CPFF	GE - MASS	5.657	0.756	11/02	1.152	11/03	0.879	11/04		8.444	8.444
Systems Eng V22 Engine Program	SS/CPFF	ROLLS ROYCE - INDIANA	1.000								1.000	1.000
Systems Eng T400 Engine Program	SS/CPFF	P&W - FLORIDA		0.280		1.887	11/03	0.250	12/04		2.417	2.417
Systems Eng J85 Engine Program	SS/CPFF	GE - OK		0.294		0.751	12/03	0.809	11/04		1.854	1.854
Systems Eng Props Program	SS/CPFF	HAM SUNSTRAND - CONN	5.550	1.127	12/02	0.743	12/03	0.440	12/04		7.860	7.860
Systems Eng Contracts under 1.0M	VARIOUS	VARIOUS	12.966	1.171	10/02	1.645	10/03	1.036	10/04	Continuing	Continuing	
Systems Eng Lab Field Activity (1.0 or more)	WX	NAWCAD-PAX	110.118	12.091	10/02	11.265	10/03	4.195	10/04	Continuing	Continuing	
Systems Eng Other In-House Support (1.0M or less)	VARIOUS	VARIOUS	15.330	0.820	10/02	1.150	10/03	0.310	10/04	Continuing	Continuing	
GFE-GFP Fuel Increment	MILSTRIP	DES/DLA	4.355	0.000		0.351	10/03	0.487	10/04	Continuing	Continuing	
Award Fees**	SS/CPAF		1.060	0.439							1.499	1.499
Subtotal Product Development			262.799	27.464		47.886		51.970		Continuing	Continuing	

Remarks:

* F110 (F14 B/D) AF contract has a ten year period of performance.

** Award fees F402 (.205), F402 (.234).

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME W1355 Aircraft Engine Component Improvement Program						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Development Support	VARIOUS	VARIOUS	4.446	0.634	10/02	0.403	10/03	0.310	10/04	Continuing	Continuing	
Software Development												
Integrated Logistics Support												
Configuration Management												
Technical Data												
Studies & Analyses												
GFE												
Award Fees												
Subtotal Support			4.446	0.634		0.403		0.310		Continuing	Continuing	

Remarks:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 3)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements			PROJECT NUMBER ANI W1355 Aircraft Engine Component Improvement Program						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	VARIOUS	VARIOUS	2.694	0.146	10/02	0.067	10/03	0.053	10/04	Continuing	Continuing	
Operational Test & Evaluation												
Live Fire Test & Evaluation												
Test Assets												
Tooling												
GFE												
Award Fees												
Subtotal T&E			2.694	0.146		0.067		0.053		Continuing	Continuing	
Remarks:												
Contractor Engineering Support												
Government Engineering Support												
Program Management Support	VARIOUS	VARIOUS	1.023	0.098	10/02	0.067	10/03	0.053	10/04	Continuing	Continuing	
Travel				0.043	10/02	0.050	10/03	0.050	10/04	Continuing	Continuing	
Transportation												
SBIR Assessment												
Subtotal Management			1.023	0.141		0.117		0.103		Continuing	Continuing	
Remarks:												
Total Cost			270.962	28.385		48.473		52.436		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N, Aviation Improvements				PROJECT NUMBER AND NAME W9109, Age Exploration Model			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost			**3.708**					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Aircraft Age Exploration Model for Naval Aircraft platforms. The model will use existing Naval Aircraft data to establish connections between age and reliabilty, maintainability, and readiness and will provide the Navy with a valuable tool for understanding, predicting, and communicating impacts of decisions to extend aircraft service lives and for mitigating risks associated with these decisions. This is a continuation of efforts initiatied in FY02 to add enhanced functionallity to include automatic identification of reliability degredation items and automatic tracking of actuals against model generated predictions.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9109, Age Exploration Model

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			3.308	
RDT&E Articles Quantity				

Software Development
Develop enhancements to computer model that integrates existing maintenance data with predictive computations to determine future reliability and maintianability conditions for aircraft and components. Enhancements include automated generation of reliability and maintainabilty opportunity triggers and also real time tracking of actual results against predictied performance.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.150	
RDT&E Articles Quantity				

Technical data and training materials
Develop technical data to include user manuals and other training materials. Conduct user training sessions as required for model validation.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.250	
RDT&E Articles Quantity				

Conduct model validation studies
Using a combination of historical and current maintenance data perform model verification and validation studies to demonstrate acceptable level of confidence in outputs produced by the model

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9109, Age Exploration Model

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	0.000	0.000	0.000
Current BES/President's Budget	0.000	3.708	0.000
Total Adjustments	0.000	3.708	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions			
Congressional rescissions			
SBIR/STTR Transfer			
Economic Assumtions			
Other Adjustments		-0.042	
Reprogrammings			
Congressional increases		3.750	
Subtotal	0.000	3.708	0.000

Schedule:

N/A

Technical:

N/A

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9109, Age Exploration Model

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

Related RDT&E:
0205633N, Aircraft Equipment Reliability/Maintainability Improvement Program, W1041
0205633N, Automated Wire Analysis, W9426
0205633N, NAVAIR Technology Commercialization Initiative, W9428

E. ACQUISITION STRATEGY:

N/A

F. MAJOR PERFORMERS:

N/A

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N, Aviation Improvements			PROJECT NUMBER AND NAME W9109, Age Exploration Model						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Development Support											0.000	
Software Development	gsa/ffp	Mantech, MD				2.958	02/04				2.958	2.958
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data	gsa/ffp	Mantech, MD				0.150	02/04				0.150	0.150
Studies & Analyses											0.000	
GFE	gsa/ffp	Mantech, MD				0.050	02/04				0.050	0.050
Award Fees											0.000	
Subtotal Support			0.000	0.000		3.158		0.000		0.000	3.158	

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N, Aviation Improvements				PROJECT NUMBER AND NAME W9109, Age Exploration Model						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support	gsa/ffp	Mantech, MD				0.250	02/04				0.250	0.250
Government Engineering Support	WX	NAWCAD				0.200	02/04				0.200	
Program Management Support	WX	NAWCAD				0.090	02/04				0.090	
Travel	WX	NAWCAD				0.010	02/04				0.010	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.550		0.000		0.000	0.550	
Remarks:												
Total Cost			0.000	0.000		3.708		0.000		0.000	3.708	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N, Aviation Improvements				PROJECT NUMBER AND NAME W9426, Automated Wire Analysis			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost			**2.967**					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

Current practices have technicians perform electrical testing on aircraft using both manual and automated methods. Once a short or open is found using existing test equipment, the technician must then find the physical location of the fault, one wire at a time, using pin-to-pin tests with handheld multi-meters and visual inspection. This generally involves at least two individuals connecting leads to each end of a wire to be tested. This is a slow process and reactive in nature. New commercial technology that incorporates Standing Wave Reflectometry (SWR) can proactively identify all hard faults (e.g. shorts and opens) of wiring malfunctions from a single end wire test, verify system modifications, and localize aircraft wiring malfunctions to within inches. This capability does not exist in the U.S. Navy today. A single wiring analyzer can serially test up to 1,152 wires at a time and the system can be expanded to test up to a maximum of 128,000 test points. This effort is to develop, validate and qualify this capability for Naval Avaition applications.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9426, Automated Wire Analysis

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			1.767	
RDT&E Articles Quantity				

Software development
Develop the software required to utilize the new technology that incorporates Standing Wave Reflectometry (SWR) that can proactively identify all hard faults (e.g. shorts and opens) of wiring malfunctions from a single end wire test, verify system modifications, and localize aircraft wiring malfunctions to within inches.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.900	
RDT&E Articles Quantity				

In-Service validation testing
Testing to ensure that the product works in a true fleet environment. Aircraft to be studied are the EA-6B, C-2, S-3, E-6, H-46, and H-53.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.300	
RDT&E Articles Quantity				

Tech data and training materials
User training and the development of the materials required for training and after training reference.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9426, Automated Wire Analysis

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	0.000	0.000	0.000
Current BES/President's Budget	0.000	2.967	0.000
Total Adjustments	0.000	2.967	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.033	
Congressional rescissions			
SBIR/STTR Transfer			
OSD			
Other Adjustments			
Economic Assumtions			
Reprogrammings			
Congressional increases		3.000	
Subtotal	0.000	2.967	0.000

Schedule:

N/A

Technical:

N/A

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9426, Automated Wire Analysis

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

Related RDT&E:
0205633N, Aircraft Equipment Reliability/Maintainability Improvement Program, W1041
0205633N, Age Exploration Model, W9109
0205633N, NAVAIR Technology Commercialization Initiative, W9428

E. ACQUISITION STRATEGY:

N/A

F. MAJOR PERFORMERS:

N/A

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N, Aviation Improvements			PROJECT NUMBER AND NAME W9426, Automated Wire Analysis						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Development Support											0.000	
Software Development	TBD	Eclypse, CA	0.000			1.767	03/04				1.767	1.767
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data	TBD	Eclypse, CA	0.000			0.200	03/04				0.200	0.200
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		1.967		0.000		0.000	1.967	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N, Aviation Improvements			PROJECT NUMBER AND NAME W9426, Automated Wire Analysis							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation	TBD	Eclypse, CA	0.000			0.400	03/04				0.400	0.400
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.400		0.000		0.000	0.400	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support	WX	NAWCAD	0.000			0.450	03/04				0.450	
Program Management Support	WX	NAWCAD	0.000			0.150	03/04				0.150	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.600		0.000		0.000	0.600	
Remarks:												
Total Cost			0.000	0.000		2.967		0.000		0.000	2.967	
Remarks:												

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements				PROJECT NUMBER AND NAME H9427 Digital Integrated Cockpit Display			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
`			**0.989**					
RDT&E Articles Qty			**1**					

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The TH-57 Helicopter is the Navy's only primary helicopter pilot training platform, and is expected to remain in that capacity until 2025. All Navy fleet helicopters will have digital cockpits by 2012. To remain viable as a effective training platform, which meets the training requirements of an all digital helicopter fleet, the TH-57 cockpit can best utilize a digital design to effect greater aircraft training utilization. Research and Development funds will be utilized to produce a product that keeps pace with the rapidly changing fleet helicopter pilot training requirements and provides increased hard landing/crash and exceedence warning system protection to aircrews. The following areas will be explored Requirement Analysis, Cost Estimation, Crew Systems/Human System Integration, Logistics Support Analysis, and Aircraft Integration.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	H9427 Digital Integrated Cockpit Display

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.290	
RDT&E Articles Quantity			1	

Test article development and integration.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.699	
RDT&E Articles Quantity				

The following areas will be explored, Requirement Analysis, Cost Estimation, Crew Systems/Human System Integration, Logistics Support Analysis, and Aircraft Integration.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost				
RDT&E Articles Quantity				

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**			PROGRAM ELEMENT 0205633N Aviation Improvements			PROJECT NUMBER AND NAME H9427 Digital Integrated Cockpit Display						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/SSP	L-3COM, Madison, MS				0.355	03/04				0.355	0.355
Ancillary Hardware Development											0.000	
Aircraft Integration	SS/SSP	L-3COM, Madison, MS				0.344	03/04				0.344	0.344
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering	SS/SSP	L-3COM, Madison, MS				0.290	03/04				0.290	0.290
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.989		0.000		0.000	0.989	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N Aviation Improvements				PROJECT NUMBER AND NAME H9427 Digital Integrated Cockpit Display						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support											0.000	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	0.000		0.989		0.000		0.000	0.989	
Remarks:												

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CLASSIFICATION:

EXHIBIT R4, Schedule Profile																															DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**									PROGRAM ELEMENT NUMBER AND NAME 0205633N Aviation Improvements												PROJECT NUMBER AND NAME H9427 Digital Integrated Cockpit Display											
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones										MS B △																						
Prototype Phase										▭																						
Test & Evaluation Milestones																																
Integration Test											△—△																					
Production Milestones																																
Deliveries																																

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CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-7**	PROGRAM ELEMENT 0205633N Aviation Improvements				PROJECT NUMBER AND NAME H9427 Digital Integrated Cockpit Display			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase			2Q-4Q	1Q				
Integration Testing			3Q-4Q					

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2004**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**	PROGRAM ELEMENT NUMBER AND NAME 0205633N, Aviation Improvements				PROJECT NUMBER AND NAME W9428, NAVAIR Technology Commercialization Initiative			
COST ($ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost			**1.483**					
RDT&E Articles Qty								

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The NAVAIR Technology Commercialization Initiative is an effort to transition commercial technology for Naval Avaition Applications.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9428, NAVAIR Technology Commercialization Initiative

B. Accomplishments/Planned Program

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost		0.000	0.933	0.000
RDT&E Articles Quantity				

Technology Development Fund
Funding to be awarded for development and validation of new technologies. Funding decisions are to be based on the recommendations of the proposal review team which comprises experts from NAVAIR, Maryland Governor's Office and local industry coalition.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.400	
RDT&E Articles Quantity				

Technical Oversight
Spans the efforts from the investigations required to ensure the competence of the proposing companies (both technical and financial) through prototype demonstration and the planning for implementation of successfully demonstrated technology.

		FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.150	
RDT&E Articles Quantity				

Programatic and Financial management
Efforts associated with the releasing of awards, receiving of deliverables, tracking of progress, and production of programatic status reports.

R-1 SHOPPING LIST - Item No. 179

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9428, NAVAIR Technology Commercialization Initiative

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2003	FY 2004	FY 2005
Previous President's Budget:	0.000	0.000	0.000
Current BES/President's Budget	0.000	1.483	0.000
Total Adjustments	0.000	1.483	0.000
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.017	
Congressional rescissions			
SBIR/STTR Transfer			
OSD			
Other Adjustments			
Economic Assumtions			
Reprogrammings			
Congressional increases		1.500	
Subtotal	0.000	1.483	0.000

Schedule:

N/A

Technical:

N/A

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N, Aviation Improvements	W9428, NAVAIR Technology Commercialization Initiative

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost

Related RDT&E:
0205633N, Aircraft Equipment Reliability/Maintainability Improvement Program, W1041
0205633N, Age Exploration Model, W9109
0205633N, Automated Wire Analysis, W9426

E. ACQUISITION STRATEGY:

N/A

F. MAJOR PERFORMERS:

N/A

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N, Aviation Improvements			PROJECT NUMBER AND NAME W9428, NAVAIR Technology Commercialization Initiative							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Primary Hardware Development											0.000	
Ancillary Hardware Development											0.000	
Aircraft Integration											0.000	
Ship Integration											0.000	
Ship Suitability											0.000	
Systems Engineering											0.000	
Training Development											0.000	
Licenses											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal Product Development			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Development Support											0.000	
Software Development											0.000	
Integrated Logistics Support											0.000	
Configuration Management											0.000	
Technical Data											0.000	
Studies & Analyses	ss/ffp	Patuxent Partnership, MD	0.000			1.333	02/04				1.333	1.333
GFE											0.000	
Award Fees											0.000	
Subtotal Support			0.000	0.000		1.333		0.000		0.000	1.333	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT 0205633N, Aviation Improvements				PROJECT NUMBER AND NAME W9428, NAVAIR Technology Commercialization Initiative						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation											0.000	
Operational Test & Evaluation											0.000	
Live Fire Test & Evaluation											0.000	
Test Assets											0.000	
Tooling											0.000	
GFE											0.000	
Award Fees											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Contractor Engineering Support											0.000	
Government Engineering Support											0.000	
Program Management Support	WX	NAWC-AD, Pax River MD	0.000			0.150	02/04				0.150	
Travel											0.000	
Transportation											0.000	
SBIR Assessment											0.000	
Subtotal Management			0.000	0.000		0.150		0.000		0.000	0.150	
Remarks:												
Total Cost			0.000	0.000		1.483		0.000		0.000	1.483	
Remarks:												

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