EXHIBIT R-2, RDT&E Budget Item Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7**					R-1 ITEM NOMENCLATURE 0205633N, AVIATION IMPROVEMENTS			
COST ($ in Millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	**49.976**	**39.928**	**60.073**	**54.431**	**58.108**	**56.891**	**52.399**	**53.192**
W0601 Common Ground Equipment	**3.489**	**3.361**	**3.166**	**2.660**	**2.697**	**2.742**	**2.818**	**2.869**
W0852 Consolidated Automated Support System (CAS	**6.000**	**6.594**	**6.442**	**6.390**	**6.493**	**6.597**	**6.737**	**6.862**
W1041 A/C Equip Reliability/Maintainability Improveme	**2.406**	**0.606**	**1.447**	**2.078**	**3.020**	**3.123**	**2.369**	**2.875**
W1355 Aircraft Engine CIP	**34.292**	**29.367**	**49.018**	**43.303**	**45.898**	**44.429**	**40.475**	**40.586**
W9109 Aircraft Exploration Model Development	**2.424**							
W9110 Nano-Composite Hard-Coat for A/C Coatings	**1.365**							

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 aircraft. 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. 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. The 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. Nano-Composite Hard-Coat for Aircraft Coatings is evaluation of erosion coatings for propulsion systems.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2003**	
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 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**3.489**	**3.361**	**3.166**	**2.660**	**2.697**	**2.742**	**2.818**	**2.869**
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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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	0.677			
RDT&E Articles Quantity				

Advanced Boresight Equipment (ABE) - Provides the capability to do quick and accurate boresight operations without the current limitations. ABE is specified to do a complete boresight in less than one (1) hour, including the mounting of adapters. Will allow for other maintenance operations to continue concurrently with the boresighting operation.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.727	2.111	2.781	2.162
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.085	1.250		
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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 (Cont.)

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			0.385	0.498
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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget:	3.328	3.444	3.488	2.991
Current BES/President's Budget	3.489	3.361	3.166	2.660
Total Adjustments	0.161	-0.083	-0.322	-0.331
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.020		
Congressional rescissions	-0.007			
SBIR/STTR Transfer	-0.032			
Economic Assumptions	-0.010	-0.063	-0.101	-0.073
Reprogrammings	0.000			
Other Adjustments	0.210		-0.221	-0.258
Congressional increases				
Subtotal	0.161	-0.083	-0.322	-0.331

Schedule:

JETI MSIII slipped from 03/02 to 06/02 due to the delay in completion of Technical Evaluation. ABE Award slipped from 01/02 to 05/02 due to a restructuring of the program.

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-7	0205633N Aviation Improvements	W0601 Common Ground Equipment

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
APN 070500 Ground Support Equipment	135.971	160.762	195.179	198.385	196.141	188.627	184.974	173.9	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:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2003**			
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	1.624	02/03	2.305	02/04	1.681	03/05	Continuing	Continuing	
Ancillary Hardware Development												
Aircraft Integration												
Ship Integration												
Ship Suitability												
Systems Engineering	Various	Various				0.501	02/04	0.614	03/05	Continuing	Continuing	
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			12.837	1.624		2.806		2.295		Continuing	Continuing	
Remarks:												
Development Support	Various	Various	4.139	1.687	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	1.687		0.125		0.120		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2003**				
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	3.361		3.166		2.660		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2003**

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	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 NGMH						MS A △									MS B △										MS C △							
Prototype Phase						▭																										
Radar System Development																																
EDM Radar Delivery																																
Software 1XXSW Delivery 2XXSW Delivery																																
Test & Evaluation Milestones NGMH															Developmental Testing																	
Development Test															▭																	
Operational Test																					Operational Testing											
																					▭											
Production Milestones NGMH																					LRIP											
LRIP FY 07																					▭											
FRP FY 09																													FRP Start △			
Deliveries NGMH																										LRIP (3) △						

R-1 SHOPPING LIST - Item No. 183

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

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2003**		
APPROPRIATION/BUDGET ACTIVITY **RDT&BA-7**	PROGRAM ELEMENT 0205633N Aviation Improvements				PROJECT NUMBER AND NAME W0601 Common Ground Equipment			
Schedule Profile NGMH	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Phase		2Q-4Q	1Q-4Q	1Q-2Q				
Milestone A		2Q						
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 2003**	
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 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**6.000**	**6.594**	**6.442**	**6.390**	**6.493**	**6.597**	**6.737**	**6.862**
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 electro-optics capability to support the ATFLIR, multi-analog test capability to enable functional testing, and CASS station modernization elements.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	4.509	3.829	2.000	
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.491	2.765	1.000	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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			2.000	0.659
RDT&E Articles Quantity				

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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			1.442	4.731
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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget:	6.682	6.757	6.740	6.707
Current BES/President's Budget	6.000	6.594	6.442	6.390
Total Adjustments	-0.682	-0.163	-0.298	-0.317
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.039		
Congressional rescissions	-0.014			
SBIR/STTR Transfer	-0.144			
Economic Assumptions	-0.017	-0.124	-0.172	-0.170
Reprogrammings	-0.507			
Other Adjustments			-0.126	-0.147
Congressional increases				
Subtotal	-0.682	-0.163	-0.298	-0.317

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
APN 070500 CASS	96.409	88.562	92.698	74.14	87.172	88.926	90.619	92.229	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 CIP supplier.

F. MAJOR PERFORMERS:

Not applicable

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **February 2003**		
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	3.829	03/03	1.460	03/04			Continuing	Continuing	
Hardware Development - Upgrades	Various	Various	20.652	2.465	Various	0.750	Various	0.750	Various	Continuing	Continuing	
Hardware Development - EO	TBD	TBD				1.500	Various	0.600	Various	Continuing	Continuing	
Hardware Development - Mod	TBD	TBD				1.042	Various	3.831	Various	Continuing	Continuing	
Ship Suitability												
Systems Engineering												
Training Development												
Licenses												
Tooling												
GFE												
Award Fees												
Subtotal Product Development			27.169	6.294		4.752		5.181		Continuing	Continuing	
Remarks:												
Development Support - SI	TBD	TBD				0.240	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		1.390		0.909		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2003**				
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	WX	NAWCAD, Patuxent River, MD	0.300	0.300	12/02	0.300	12/03	0.300	12/04	Continuing	Continuing	
Transportation												
SBIR Assessment												
Subtotal Management			0.300	0.300		0.300		0.300		Continuing	Continuing	
Remarks:												
Total Cost			27.469	6.594		6.442		6.390		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																															DATE: **February 2003**
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. 183

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

CLASSIFICATION:

Exhibit R-4a, Schedule Detail						DATE: **February 2003**		
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	1Q-3Q							

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2003**	
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 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	**2.406**	**0.606**	**1.447**	**2.078**	**3.020**	**3.123**	**2.369**	**2.875**
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 2003**
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.250	0.225	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 is to address 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 will be a report detailing the finding and changes to the maintenance practices as requried to increase the life of the canopies.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.264	0.000	0.000	0.000
RDT&E Articles Quantity				

Corrosion Preventative Compounds

Over the last decade a number of corrosion preventative compounds have been developed claiming significant improvement in corrosion protection while also promising reduced maintenance burden to maintain. Individual products had been qualified to a MIL-Spec 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.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.892	0.081	0.152	0.402
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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	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 effort 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.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.375	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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.320	0.535
RDT&E Articles Quantity				

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

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.000
RDT&E Articles Quantity				

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 2002	FY 2003	FY 2004	FY 2005
FY 2003 President's Budget	0.622	0.620	0.631	0.534
FY 2004 President's Budget	2.406	0.606	1.447	2.078
Total Adjustments	1.784	-0.014	0.816	1.544
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.003		
Congressional rescissions	-0.001			
SBIR/STTR Transfer				
Economic Assumptions	-0.002	-0.011	-0.046	-0.057
Reprogrammings	1.787			
Other Adjustments			0.862	1.601
Congressional increases				
Subtotal	1.784	-0.014	0.816	1.544

Schedule:

Not Applicable

Technical:

Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 2002	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

E. ACQUISITION STRATEGY:

Not applicable

F. MAJOR PERFORMERS:

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2003**				
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	0.354	10/02	1.267	10/03	1.858	10/04	Continuing	Continuing	
GFE												
Award Fees												
Subtotal Support			8.659	0.354		1.267		1.858		Continuing	Continuing	
Remarks:												

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2003**				
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	Lockheed, Marietta, GA	0.000	0.112	11/02						0.112	0.112
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	0.252		0.180		0.220		Continuing	Continuing	
Remarks:												
Total Cost			9.379	0.606		1.447		2.078		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																																DATE: February 2003
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)											
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
Canopy Crazing																																
Corrosion Preventative Compounds																																
Corrosion Barriers Tapes and Films																																
High Value Return on Investment																																
Arc Fault Circuit Breaker																																
ASQ-208																																
Smart Wire																																
APN-202																																

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2003**	
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 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost	* **34.292**	**29.367**	**49.018**	**43.303**	**45.898**	**44.429**	**40.475**	**40.586**
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.

* DERF funding of $3.3 Million received in FY 2002.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.886	1.957	2.228	2.023
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.501	1.127	0.743	0.675
RDT&E Articles Quantity				

E-2/C-2/C-130

Incorporate improved blade heaters. Develop improved propeller control system.

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.222	0.756	1.152	1.047
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. Collecte 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 2003**
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.600	2.537	2.254	2.047
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.628	0.613	0.524	0.476
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	3.320	3.240	6.030	5.475
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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.672	1.632	3.511	3.190
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.628	0.613	1.887	1.714
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.100	2.049	0.631	0.574
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.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.200	3.200	10.964	9.956
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 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.327	3.500	3.027	2.749
RDT&E Articles Quantity				

T-45

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

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000	0.317
RDT&E Articles Quantity				

V-22

Begin transition of T406 engine from EMD program to CIP efforts. Establish life management plan and criticial parts tracking requirements. Address design issues as required.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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

	FY 02	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	16.208	8.143	16.067	13.060
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; improv products and processes for fuels, lubricants, and refueling equipment; improv blade and vane repair processes and life cycle support; and improv electrical system product support, wiring, and battery systems.

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

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

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget	30.431	30.094	37.588	28.065
Current BES/President's Budget	34.292	29.367	49.018	43.303
Total Adjustments	3.861	-0.727	11.430	15.238
Summary of Adjustments				
Congressional program reductions				
Congressional undistributed reductions		-0.177		
Congressional rescissions	-0.065			
SBIR/STTR Transfer	-0.458			
Economic Assumptions	-0.083	-0.550	-1.300	-1.084
Reprogrammings	-0.096			
Other Adjustments	-0.037		12.730	16.322
Congressional increases (DERF)	4.600			
Subtotal	3.861	-0.727	11.430	15.238

Schedule: Not applicable

Technical: Not Applicable

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2003**
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:

Major Performer	Location	Description of Work	FY03 Amt & Award Date	FY04 Amt & Award Date	FY 05 Amt & Award Date

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)						DATE: **February 2003**						
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
Systems Eng F110 Engine Program*	SS/CPAF	GE- OHIO	16.986	2.049	12/02	0.631	12/03	0.574	12/04		20.240	20.240
Systems Eng F402 Engine Program	SS/CPFF	ROLLS ROYCE - UK	25.222	3.240	12/02	6.030	12/03	5.475	12/04		39.967	39.967
Systems Eng F404/T58/T64 Engine	SS/CPFF	GE - MASS	32.199	1.632	12/02	3.511	12/03	3.190	10/04		40.532	40.532
Systems Eng J52 Engine Program	SS/CPFF	P&W - FLORIDA	11.506	2.537	12/02	1.503	12/03	1.365	12/04		16.911	16.911
Systems Eng T56 Engine Program	SS/CPFF	INDIANA	7.653	1.957	02/03	2.228	02/04	2.023	02/05		13.861	13.861
Systems Eng F405 Engine Program	SS/CPAF	ROLLS ROYCE - UK	6.692			3.027	12/03	2.749	12/04		12.468	12.468
Systems Eng F/A 18E/F Engine Prog	SS/CPFF	GE - MASS	0.664			10.964	12/03	9.956	12/04		21.584	21.584
Systems Eng T700 Engine Program	SS/CPFF	GE - MASS	5.841	1.225	01/03	1.048	01/04	0.951	01/05		9.065	9.065
Systems Eng TF34 Engine Program	SS/CPFF	GE - MASS	5.657	0.756	11/02	1.152	11/03	1.047	11/04		8.612	8.612
Systems Eng V22 Engine Program	SS/CPFF	ROLLS ROYCE - INDIANA	1.000					0.317	12/04		1.317	1.317
Systems Eng T400 Engine Program	SS/CPFF	P&W - FLORIDA				1.887	11/03	1.714	12/04		3.601	3.601
Systems Eng J85 Engine Program	SS/CPFF	GE - OK				0.751	12/03	0.682	11/04		1.433	1.433
Systems Eng Props Program	SS/CPFF	HAM SUNSTRAND - CONN	5.550	1.127	12/02	0.743	12/03	0.675	12/04		8.095	8.095
Systems Eng Contracts under 1.0M	VARIOUS	VARIOUS	12.966	1.171	10/02	1.645	10/03	1.666	10/04	Continuing	Continuing	
Systems Eng Lab Field Activity (1.0 or m	WX	NAWCAD-PAX	110.118	11.185	10/02	11.860	10/03	9.052	10/04	Continuing	Continuing	
Systems Eng Other In-House Support (1.	VARIOUS	VARIOUS	15.330	0.820	10/02	1.150	10/03	1.091	10/04	Continuing	Continuing	
GFE-GFP Fuel Increment	MILSTRIP	DES/DLA	4.355	0.351	10/02	0.351	10/03	0.360	10/04	Continuing	Continuing	
Award Fees**	SS/CPAF		1.060	0.439							1.499	1.499
Subtotal Product Development			262.799	28.489		48.481		42.887		Continuing	Continuing	

Remarks:

* F110 (F14 B/D) AF contract has a ten year period of performance.
** Award fees for F110, F402 (.210), F402 (.240).

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2003**				
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:

R-1 SHOPPING LIST - Item No. 183

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2003**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-7**		PROGRAM ELEMENT Program Element (PE) No. and Name				PROJECT NUMBER AND NAME Project Unit (PU) No. and Name						
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												
Transportation												
SBIR Assessment												
Subtotal Management			1.023	0.098		0.067		0.053		Continuing	Continuing	
Remarks:												
Total Cost			270.962	29.367		49.018		43.303		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 183