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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	91.225	4.299	5.864	15.128	-	15.128	25.491	26.247	35.230	35.917	Continuing	Continuing
3367: <i>Training Aircraft Updates</i>	91.225	2.886	5.058	14.572	-	14.572	24.490	25.286	34.360	35.032	Continuing	Continuing
9099: <i>Physiological Episodes</i>	0.000	1.413	0.806	0.556	-	0.556	1.001	0.961	0.870	0.885	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for design, development, integration and test of various pre and post production platform improvements for Naval Undergraduate Flight Training Systems which include T-45, T-6, T-44, TH-57, TH-73A, T-44 Follow-On: Multi-Engine Training System (METS), and T-45 Follow-On (Undergraduate Jet Training System (UJTS)) / Tactical Surrogate. Continued development engineering for improvements in reliability, maintainability, and safety are required to ensure maximum benefit is achieved to provide effective cost of ownership and availability of aircraft to meet Chief of Naval Air Training (CNATRA) student training requirements. Specific efforts include: T-45, T-6, TH-57, T-44, and TH-73A Training System Improvements such as development and sustainment engineering change proposals (ECPs), avionics reliability and modernization, corrosion prevention ECPs, obsolescence ECPs, and new solutions required to meet evolving fleet training requirements; T-45 and T-6 Physiological Episode (PE) mitigation analysis; T-44 Follow-On: METS development; and T-45 Follow-On (UJTS) / Tactical Surrogate development.

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	4.307	5.864	0.000	-	0.000
Current President's Budget	4.299	5.864	15.128	-	15.128
Total Adjustments	-0.008	0.000	15.128	-	15.128
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.008	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000
• Adjustments to Budget Year	-	-	15.128	-	15.128

Change Summary Explanation

Technical: N/A

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Cost: FY 2023 funding request was reduced by \$0.266 million to account for the availability of prior year execution balances.

Schedule: N/A

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>				Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
3367: <i>Training Aircraft Updates</i>	91.225	2.886	5.058	14.572	-	14.572	24.490	25.286	34.360	35.032	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Training System Improvements:

Funding provides for design, development, integration and test of various pre and post production platform improvements for Naval Undergraduate Flight Training Systems which include T-45, T-6, T-44, TH-57, TH-73A, T-44 Follow-On: Multi-Engine Training System (METS), and T-45 Follow-On (UJTS) / Tactical Surrogate.

T-45 and T-6 Physiological Episode (PE) Mitigation:

Efforts will provide for studies and development efforts to address mitigation of the T-45 and T-6 physiological episodes.

T-44 Follow-On: Multi-Engine Training System (METS):

The T-44 Training Systems consists of the (Qty 54) T-44C aircraft, and associated family of ground based training devices. The T-44 was fielded in 1978 as the only Navy/Marine Corps Multi-Engine trainer. T-44C is the only transitional platform from single engine to multi-engine Transport and Maritime fleet aircraft. The aging platform has become less cost effective to maintain annually as it has surpassed its fatigue life by greater than 50%. In addition, the aircraft is experiencing obsolescence, diminishing manufacturing resources and material shortages, and training capability gaps (as identified in the Capabilities Based Assessment Naval Undergraduate Flight Training). This effort supports development of alternatives/efforts for replacing the T-44 Multi-Engine replacement training system and development and validation of the acquisition strategy for future procurement of the capability to continue to provide the fleet replacement squadrons with qualified and capable Naval Aviators. This effort includes, but is not limited to, market research, requirements development, evaluation of acquisition strategies, evaluation of proposals, and testing of prototypes.

T-45 Follow-On (Undergraduate Jet Training System (UJTS)) / Tactical Surrogate:

The T-45 Training System consists of the T-45C aircraft, ground based training devices, curricula, and associated equipment. The T-45 is facing significant aircraft, engine, and component obsolescence issues. These issues are projected to dramatically increase operating costs and aircraft availability by 2030. This research and development effort will investigate alternatives for replacing the T-45 training system and develop and validate the acquisition strategy for the procurement of a new Undergraduate Jet Training System (UJTS). The T-45 Follow-On (UJTS) will ensure training commands continue to provide the fleet replacement squadrons with qualified and capable naval aviators. This effort includes, but is not limited to, market research, requirements development, evaluation of acquisition strategies, evaluation of proposals, and testing of prototypes.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Training System Improvements	2.368	2.613	12.115	0.000	12.115
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy	Date: April 2022
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
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<p>Description: Funding provides for design, development, integration and test of various pre and post production platform improvements for Naval Undergraduate Flight Training Systems which include T-45, T-6, T-44, TH-57, TH-73A, T-44 Follow-on: Multi-Engine Training System B18 (METS), and T-45 Follow-On (UJTS) / Tactical Surrogate.</p> <p>FY 2022 Plans: Continue studies & development efforts for platform improvements for Naval Undergraduate Flight Training Systems, to include T-45 and T-6 avionics and airframe improvement studies, T-45 Test Wing Maintenance, and T-45 Follow-On: Undergraduate Jet Training System (UJTS) pre-acquisition studies.</p> <p>FY 2023 Base Plans: Continue studies & development efforts for platform improvements for Naval Undergraduate Flight Training Systems, to include T-45 and T-6 avionics and airframe improvement studies, T-45 Test Wing Maintenance, and T-45 Follow-On (UJTS) / Tactical Surrogate pre-acquisition studies.</p> <p>FY 2023 OCO Plans: N/A.</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: FY2022 to FY2023 increase by \$9.502M to support increased flight hours for testing and pre-acquisition efforts for the T-45 Follow-On (UJTS) / Tactical Surrogate.</p>					
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Title: T-44 Follow-On: Multi-Engine Training System (METS)	0.518	2.445	2.457	0.000	2.457
Articles:	-	-	-	-	-

<p>Description: Funding supports research of alternatives for the T-44 Follow-On: Multi-Engine Training System (METS), to include development and validation of the acquisition strategy for future procurement of the capability, ensuring continuous support to fleet replacement squadrons with qualified and capable Naval Aviators. This effort includes, but is not limited to, market research, requirements development, evaluation of acquisition strategies, evaluation of proposals, and testing of prototypes.</p> <p>FY 2022 Plans: Develop Ground Based Training Systems(GBTS) and Contract Logistics Services (CLS) technical documentation, to include but not limited to Requirements Documents, Cybersecurity Strategy, Test and Evaluation Master Plan (TEMP), Acquisition Plan/Strategy, Funding Profile, Source Selection Plan, Risk</p>					
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Management Plan, Life Cycle Cost, Initial Capabilities Document (ICD), Market Survey, and relative documents required during the pre-solicitation process.					
<i>FY 2023 Base Plans:</i> Develop Ground Based Training Systems (GBTS) and Contract Logistics Services (CLS) technical documentation, to include but not limited to Requirements Documents, Cybersecurity Strategy, Test and Evaluation Master Plan (TEMP), Acquisition Plan/Strategy, Funding Profile, Source Selection Plan, Risk Management Plan, Life Cycle Cost, Initial Capabilities Document (ICD), Market Survey, and relative documents required during the pre-solicitation process.					
<i>FY 2023 OCO Plans:</i> N/A.					
<i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> FY2022 to FY2023 increased \$0.012M to cover economic inflation in the pre-solicitation efforts of the T-44 Multi-Engine Follow-On Training System (METS).					
Accomplishments/Planned Programs Subtotals	2.886	5.058	14.572	0.000	14.572

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0569: <i>T45 Series</i>	154.409	158.772	201.670	-	201.670	181.206	180.806	193.585	197.321	202.655	2,886.365
• APN/0571: <i>JT Primary Acft Trnr Sys (JPATS)</i>	22.682	22.955	19.780	-	19.780	34.430	33.184	33.131	33.801	0.000	309.620
• APN/0549: <i>Trainer Acft Series</i>	7.085	7.849	9.568	-	9.568	14.839	13.025	16.334	16.968	11.639	358.277
• APN/0344: <i>Advanced Helicopter Trainer System</i>	185.893	163.490	119.816	-	119.816	0.000	0.000	0.000	0.000	0.000	648.727
• APN/0343: <i>Multi-Engine Training System (METS)</i>	0.000	0.000	123.217	-	123.217	297.058	302.876	0.000	0.000	0.000	723.151

Remarks

D. Acquisition Strategy
Training System Improvements:
Efforts under this category are expected to be limited to those efforts meeting thresholds under the abbreviated acquisition category.

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
<p>Naval Aviation Physiological Episode: Efforts under this category are expected to be limited to those efforts meeting thresholds under the abbreviated acquisition category.</p> <p>T-44 Follow-On: Multi-Engine Training System (METS): A multi-engine training capability is required to provide advanced training for United States Navy (USN) and United States Marine Corps (USMC). The T-44 currently supports of Chief of Naval Air Training (CNATRA's) T-44 Multi-Engine Flight Instructor and Transition Curriculum, T-44C Advanced Multi-Engine MPTS, T-44C Multi-Engine Flight Instructor, and T-44C Intermediate E-2/C-2 MPTS syllabi. The T-44 Multi-Engine Follow-On Training System effort will be established to determine and implement the most cost efficient and effective path forward for providing Naval Aviators to the Fleet Replacement Squadrons. The acquisition program consists of a new multi-engine aircraft, Ground Based Training System (GBTS), and interim contractor maintenance/support.</p> <p>T-45 Follow-On (UJTS) / Tactical Surrogate: The Undergraduate Jet Training System (UJTS) recapitalizes the Navy's intermediate and advanced jet training capabilities. The program will include aircraft, simulators, curricula, and associated equipment. Introduction of UJTS will provide higher availability, reduce operating costs, meet future strike training requirements, and provide a platform that aligns closely with strike aircraft the graduates will operate in the Fleet. The preliminary acquisition strategy includes two separate contract actions: 1. Combined procurement of UJTS and ground based training devices; and 2. Interim Contractor Support for maintenance and sustainment.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training System Improvement: T45 Follow-On: Undergraduate Jet Training System (UJTS) Pre-acquisition Studies	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.130	Dec 2021	9.550	Dec 2022	-		9.550	0.669	10.349	-
Training System Improvement: T-45 ADSB Out Engineering	C/CPFF	Boeing : St. Louis, MO	2.168	0.408	Sep 2021	0.000		0.000		-		0.000	0.000	2.576	-
Prior Year Product Development costs no longer in the FYDP	Various	Various : Various	33.695	0.000		0.000		0.000		-		0.000	0.000	33.695	-
Subtotal			35.863	0.408		0.130		9.550		-		9.550	0.669	46.620	N/A

Remarks
 Training System Improvements, T-45 Follow-On (UJTS) / Tactical Surrogate Pre-acquisition Studies: Continues funding for product development support for the T-45 Follow-On (UJTS) / Tactical Surrogate at NAWCAD Pax River, MD. FY2023 funding increased by \$9.180M to support pre-acquisition efforts for the T-45 Follow-On (UJTS) / Tactical Surrogate.

Following cost category items were archived to prior year Product Development:
 Training System Improvement: T-45 HUD/PDU Study
 Training System Improvement: T-45 Follow-On (UJTS) / Tactical Surrogate Analysis of Alternatives (AoA)
 Training System Improvement: T-6 CSCVR
 Training System Improvement: T-6 CFIT
 PE: T-45 Digital Inline Timer Development

Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training System Improvement: T-45 Integrated Logistics Support	C/FFP	Ausley Associates, Inc. : Lexington Park, MD	1.910	0.000		0.007	May 2022	0.007	May 2023	-		0.007	Continuing	Continuing	Continuing
T-44 Follow-On: Training System	WR	NAWCAD : Patuxent River, MD	0.239	0.577	Nov 2020	2.053	Nov 2021	2.063	Nov 2022	-		2.063	0.000	4.932	-

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Support costs no longer funded in FYDP	Various	Various : Various	33.452	0.000		0.000		0.000		-		0.000	0.000	33.452	-
Subtotal			35.601	0.577		2.060		2.070		-		2.070	Continuing	Continuing	N/A

Remarks

Training System Improvements, T-45 Integrated Logistics Support: Continues funding for CSS support for T-45 integrated logistics, product development, and program management through Ausley Associates, Inc.

Training System Improvements, T-6 Integrated Logistics Support: Continues funding for CSS support for T-45 integrated logistics, product development, and program management through Ausley Associates, Inc.

T-44 Follow-On, Training System: Continues funding for pre-acquisition phase labor support for the T-44 Follow-On program. Outcomes from studies and analysis will inform decisions related to METS aircraft production contract and GBTS.

Following cost category items were archived to prior year Support Costs:
 Training System Improvement: T-6 Integrated Logistics Support
 Training System Improvement: T-6 Joint Study Efforts
 PE: T-45 Systems Engineering Support Naval Medical Research Center
 PE: T-45 Systems Engineering Support NAWCAD
 PE: T-6 Support NAWCAD
 T-44 Follow-On: System Engineering Support

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training System Improvements: T-45 Testing, Evaluation, & Certification	WR	NAWCAD : Patuxent River, MD	2.233	0.620	Nov 2020	0.000		0.000		-		0.000	0.000	2.853	-
Training System Improvements: T6 Test and Evaluation	WR	NAWCAD : Patuxent River, MD	0.053	0.055	Nov 2020	0.000		0.000		-		0.000	0.000	0.108	-
Subtotal			2.286	0.675		0.000		0.000		-		0.000	0.000	2.961	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy **Date:** April 2022

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Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
None.

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training System Improvements:T-45 PBTH Flight Hours	C/FFP	Rolls Royce : Indianapolis, IN	0.843	0.260	May 2021	0.265	May 2022	0.336	May 2023	-		0.336	1.200	2.904	2.904
Training System Improvements:T-45 Test Wing Maintenance	MIPR	Vertex Aerospace LLC : Madison, MS	2.248	0.839	Oct 2020	2.084	Nov 2021	2.094	Nov 2022	-		2.094	17.394	24.659	-
Training System Improvements: Travel	WR	NAVAIR : Patuxent River, MD	0.051	0.127	Oct 2020	0.121	Oct 2021	0.122	Oct 2022	-		0.122	Continuing	Continuing	Continuing
T-44 Follow-On: Program Management Studies & Analysis	C/FFP	TBD : TBD	0.000	0.000		0.398	Dec 2021	0.400	Dec 2022	-		0.400	0.215	1.013	1.013
Prior Year Mgmt costs no longer funded in FYDP	Various	Various : Various	14.333	0.000		0.000		0.000		-		0.000	0.000	14.333	-
Subtotal			17.475	1.226		2.868		2.952		-		2.952	Continuing	Continuing	N/A

Remarks
 Training System Improvements, T-45 PBTH Flight Hours: Continues funding for Power-By-The-Hour (PBTH) flight hours and support services for Retrofit Integration Testing (RIT) of T-45 aircraft and F-405 engines at Pax River, MD. FY2023 funding increased by \$0.071M to support anticipated increase in flight hours to be flown.
 Training System Improvements, T-45 Test Wing Maintenance: Continues funding for T-45 aircraft maintenance and support for Retrofit Integration Testing (RIT) at Pax River, MD.
 Training System Improvements, Travel: Continues funding for PMA's consolidated travel costs required to support management and service support for product development for all programs.
 Training System Improvements, T-6 Program Management: Continues funding for labor support for T-6 program management.

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Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total				
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Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total		Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			

T-44 Follow-On, Program Management Studies & Analysis: Continues funding for T-44 Follow-On pre-acquisition phase management activities. Outcomes from studies and analysis will inform decisions related to METS aircraft production contract and GBTS.

Following cost category was archived to prior year support cost category:
Training System Improvements: T-45 Project Management

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total		Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date			
Project Cost Totals	91.225	2.886		5.058		14.572		-		14.572	Continuing	Continuing	N/A	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Training System Improvements																																
Product Development																																
T-45 Follow-On: Undergraduate Jet Training System (UJTS)					UJTS Pre-acquisition Studies																											
T-45 Automatic Dependent Surveillance-Broadcast (ADS-B) Out Engineering	T-45 ADS-B Out Engineering																															
Study/Analysis/Support																																
T-45 Integrated Logistics Support									T-45 ILS																							
Test & Evaluation																																
T-45 Test, Evaluation, & Certification	T-45 Test & Cert																															
T-44 Follow-On: Multi-Engine Training System (METS)																																
Systems Engineering																																
					Training System Support																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

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Naval Aviation Physiological Episodes	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Product Development																												
PE Support	T-45 PE System Engineering																											
	T-45 PE Engineering Support																											
PE Test and Evaluation	T-45 PE, Test & Evaluation																											
	T-6 PE, Test & Evaluation																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Training System Improvements</i>				
Product Development: T-45 Follow-On (UJTS) / Tactical Surrogate: Pre-acquisition Studies	1	2022	4	2023
Product Development: T-45 Automatic Dependent Surveillance-Broadcast (ADS-B) Out Engineering: T-45 ADS-B Out Engineering	1	2021	4	2021
Study/Analysis/Support: T-45 Integrated Logistics Support: T-45 ILS	1	2022	4	2027
Test & Evaluation: T-45 Test, Evaluation, & Certification: T-45 Test, Eval, & Cert	1	2021	4	2021
T-44 Follow-On: Multi-Engine Training System (METS): Systems Engineering: METS Contract Award	1	2023	1	2023
T-44 Follow-On: Multi-Engine Training System (METS): Systems Engineering: T-44 Follow-On: METS Training System Support	1	2021	4	2023
<i>Naval Aviation Physiological Episodes</i>				
Product Development: PE Support: T-45, PE System Engineering	1	2021	4	2027
Product Development: PE Support: T-45, PE Engineering Support	1	2021	4	2027
Product Development: PE Test and Evaluation: T-45, PE Test & Evaluation	1	2021	4	2027
Product Development: PE Test and Evaluation: T-6, PE Test & Evaluation	1	2021	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy										Date: April 2022		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0603208N / Training System Aircraft				Project (Number/Name) 9099 / Physiological Episodes			
COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
9099: <i>Physiological Episodes</i>	0.000	1.413	0.806	0.556	-	0.556	1.001	0.961	0.870	0.885	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

T-45 and T-6 Physiological Episode (PE) Mitigation:
Efforts will provide for studies and development efforts to address mitigation of the T-45 and T-6 physiological episodes.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: T-45 Physiological Episode Mitigation	0.667	0.606	0.421	0.000	0.421
Articles:	-	-	-	-	-
Description: Funding provides for design, development, integration and test of platform improvements for Naval Aviation Physiological Episode (PE) Mitigation in the T-45 Training Aircraft.					
FY 2022 Plans: Continue Physiological Episode (PE) mitigation studies and development efforts for platform improvements to the T-45 Aircraft Training System. Conduct studies on acceptable breathing resistance limits under varying hypoxic, normoxic, and hyperoxic conditions in order to inform future platform improvements.					
FY 2023 Base Plans: Continue Physiological Episode (PE) mitigation studies and development efforts for platform improvements to the T-45 Aircraft Training System. Conduct studies on acceptable breathing resistance limits under varying hypoxic, normoxic, and hyperoxic conditions in order to inform future platform improvements.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: FY2022 to FY2023 decreased by \$0.185M due to reduction in required NAWCAD support.					
Title: T-6 Physiological Episode Mitigation	0.746	0.200	0.135	0.000	0.135
Articles:	-	-	-	-	-
Description: Funding provides for design, development, integration and test of platform improvements for Naval Aviation Physiological Episode (PE) Mitigation in the T-6 training aircraft.					
FY 2022 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Navy	Date: April 2022
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 9099 / <i>Physiological Episodes</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue studies and joint development efforts with US Air Force for Joint Primary Aircraft Training System (T-6). Conduct test and evaluation of new MIL-STD compliant Improved Onboard Oxygen Generating System (OBOGS) O2 concentrator. FY 2023 Base Plans: Continue joint studies and development efforts with the US Air Force for platform improvements to the Joint Primary Aircraft Training System (JPATS/T-6). Continue operational field test and evaluation on newly installed OBOGS O2 concentrators. Research, develop and test installation of Automatic Backup Oxygen System (ABOS) in the T-6A. Conduct test and evaluation of prototype Integrated Sensors Phase II package. FY 2023 OCO Plans: N/A FY 2022 to FY 2023 Increase/Decrease Statement: FY2022 to FY2023 decreased by \$0.065M due to reduction in required NAWCAD support.					
Accomplishments/Planned Programs Subtotals	1.413	0.806	0.556	0.000	0.556

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• APN/0569: <i>T-45 Physiological Episode Mitigation OSIP 012-19</i>	154.409	158.772	201.670	-	201.670	181.206	180.806	193.585	197.321	202.655	2,886.365
• APN/0571: <i>JPATS Physiological Episode Mitigation OSIP 007-20</i>	22.682	22.955	19.780	-	19.780	34.430	33.184	33.131	33.801	0.000	309.620

Remarks

D. Acquisition Strategy
PE:
Efforts under this category are expected to be limited to those efforts meeting thresholds under the abbreviated acquisition category.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 9099 / <i>Physiological Episodes</i>
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Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T45 PE Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.317	Nov 2020	0.292	Nov 2021	0.209	Nov 2022	-		0.209	Continuing	Continuing	Continuing
T45 PE Engineering Support	WR	Naval Medical Reserach Center : Silver Spring, MD	0.000	0.280	Nov 2020	0.264	Nov 2021	0.178	Nov 2022	-		0.178	Continuing	Continuing	Continuing
Subtotal			0.000	0.597		0.556		0.387		-		0.387	Continuing	Continuing	N/A

Remarks
 T45 PE, Systems Engineering: Continues funding for engineering support T-45 Physiological Episode (PE) mitigation program at NAWCAD Pax River, MD.
 T45 PE Engineering Support: Continues funding for chemical testing for T-45 Physiological Episodes at Naval Medical Research Center, Silver Spring, MD.

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T45 PE Test & Evaluation	WR	NSWCPCD : Panama City Beach, FL	0.000	0.070	Nov 2020	0.050	Nov 2021	0.034	Nov 2022	-		0.034	Continuing	Continuing	Continuing
T6 PE Test & Evaluation	WR	NAWCAD : Patuxent River, MD	0.000	0.746	Nov 2020	0.200	Nov 2021	0.135	Nov 2022	-		0.135	Continuing	Continuing	Continuing
Subtotal			0.000	0.816		0.250		0.169		-		0.169	Continuing	Continuing	N/A

Remarks
 T45 PE, Test & Evaluation: Continues funding for engineering support for the T-45 Physiological Episode (PE) mitigation program at NSWC, Panama City Division, Panama City, FL.
 T6 PE, Test & Evaluation: Continues funding for engineering support for the T-6 Physiological Episode (PE) mitigation program at NAWCAD Pax River, MD.

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		0.000	1.413	0.806	0.556	0.556	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 9099 / <i>Physiological Episodes</i>
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	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
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<u>Remarks</u>
None.

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 9099 / <i>Physiological Episodes</i>
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Naval Aviation Physiological Episodes	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Support																												
PE Support	T-45 PE System Engineering																											
	T-6 PE Engineering Support																											
PE Test & Evaluation	T-45 PE Test & Evaluation																											
	T-6 PE Test & Evaluation																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Navy **Date:** April 2022

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 9099 / <i>Physiological Episodes</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Naval Aviation Physiological Episodes</i>				
Support: PE Support: T-45 PE System Engineering	1	2021	4	2027
Support: PE Support: T-6 PE Engineering Support	1	2021	4	2027
Support: PE Test & Evaluation: T-45 PE Test & Evaluation	1	2021	4	2027
Support: PE Test & Evaluation: T-6 PE Test & Evaluation	1	2021	4	2027