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

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</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	-	13.438	8.589	18.037	0.000	18.037	42.223	36.964	7.286	7.446	Continuing	Continuing
674101: <i>Undergraduate Remotely Piloted Aircraft Training</i>	-	3.514	3.894	0.857	0.000	0.857	0.875	0.891	0.909	0.930	Continuing	Continuing
676035: <i>T-6 Operational System Development</i>	-	1.560	0.223	7.585	0.000	7.585	39.085	35.929	6.231	6.369	Continuing	Continuing
676037: <i>T-38 Operational System Development</i>	-	8.364	4.472	9.595	0.000	9.595	2.263	0.144	0.146	0.147	Continuing	Continuing

Note

This program, BA 7, PE 0604233F, project 676035, T-6 Avionics Modernization [Avionics Replacement Program (ARP)], is a new start.

A. Mission Description and Budget Item Justification

Supports Air Education and Training Command's implementation of Specialized Undergraduate Pilot Training and the Department of Defense initiative for joint pilot training.

Undergraduate Remotely Piloted Aircraft (RPA) Training (URT) continues development, test, and implementation activities for the new URT Fundamentals Training System. This program produces RPA pilots and Sensor Operators from accession sources to man RPA squadrons.

T-6 Operational System Development continues follow on development activities to the T-6 including but not limited to studies & development efforts, instructional courseware, and logistics support to include Diminishing Manufacturing Sources & Materiel Shortages (DMSMS) and development activities related to DMSMS. Included is development for the Next Generation On-Board Oxygen Generation System (OBOGS), Crash Survivable Recorder (CSR), Avionics Replacement Program (ARP) and associated upgrades. There are currently 443 aircraft in the Air Force inventory. Remaining service life is up to 39 years from the final delivery in May 2010.

The T-38 is a twin-engine, two-seat (tandem), supersonic jet trainer. The T-38C is used by Air Education and Training Command (AETC) as an advanced trainer in Specialized Undergraduate Pilot Training and Introduction to Fighter Fundamentals, and by Air Force Materiel Command (AFMC) as a test bed for fighter-type aircraft capability. T-38A/B aircraft are used by Air Combat Command (ACC) as a companion trainer for U-2 operational units and in Adversary Air (ADAIR) exercises supporting F-22 readiness, and by Air Force Global Strike Command (AFGSC) as a companion trainer for B-2 operational units. There are currently 497 active T-38s in the Air Force inventory (53 T-38A, six (6) AT-38B and 438 T-38C). T-38s first entered service in 1960 and average over 50 years old.

This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force	Date: April 2022
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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>
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The total cost of the T-6 E OBOGS Middle Tier of Acquisition effort is \$64.72 million, including RDT&E and procurement of prototype units. The T-6 E OBOGS is fully funded across the Future Years Defense Program.

The total cost of the T-38 Canopy Middle Tier of Acquisition effort is \$6.3 million, including RDT&E and procurement of prototype units. The T-38 Canopy is fully funded across the Future Years Defense Program.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Specialized Undergraduate Pilot Training weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2021 0.000 million was expended for civilian pay expenses in this program element, and in FY 2022 0.000 million is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	11.556	5.509	0.000	0.000	0.000
Current President's Budget	13.438	8.589	18.037	0.000	18.037
Total Adjustments	1.882	3.080	18.037	0.000	18.037
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	3.080			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	2.240	0.000			
• SBIR/STTR Transfer	-0.358	0.000			
• Other Adjustments	0.000	0.000	18.037	0.000	18.037

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

Project: 674101: *Undergraduate Remotely Piloted Aircraft Training*

Congressional Add: *Undergraduate RPA Training Support (Congressional Add)*

Congressional Add Subtotals for Project: 674101

Congressional Add Totals for all Projects

	FY 2021	FY 2022
	2.800	3.080
	2.800	3.080
	2.800	3.080

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	
Change Summary Explanation FY 2021 funding was increased by a total of \$1.882 million which included a \$2.240 million Below Threshold Reprogramming increase for T-38 system development and a decrease of \$0.358 million for Small Business Innovation Research. The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY 2023 cannot be made in a relevant manner.		

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</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
674101: <i>Undergraduate Remotely Piloted Aircraft Training</i>	-	3.514	3.894	0.857	0.000	0.857	0.875	0.891	0.909	0.930	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This effort supports Air Education and Training Command's (AETC) implementation of Undergraduate Remotely Piloted Aircraft (RPA) Training (URT). URT produces RPA pilots and Sensor Operators from accession sources to man RPA squadrons.

Success of the program is heavily dependent on multiple training systems to prepare undergraduate students for entry in RPA Formal Training Units (FTU). 19AF/CC approved a significant system upgrade along with a change in software. This change allowed for a more flexible and adaptable training system that can carry URT into the future. Funding will be used to develop organic software capabilities, update obsolete equipment, and develop new training tools. Funding will go to organic sustainment at Oklahoma City Air Logistics Complex, Tinker AFB, OK. The goal of these changes is to build a more capable set of training systems focused on reducing costs while ensuring RPA training is ready to support the National Defense Strategy from today into tomorrow.

Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortage (DMSMS) issues. Diminishing Manufacturing Sources efforts include removal of end-of-life software/hardware within simulators systems and move to a modular, common open system architecture that is sustainable and cyber-resilient.

Implementation requirements and standards are defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Undergraduate RPA URT Training weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2021 \$00.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$00.000 million is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Undergraduate RPA Training Support	0.714	0.814	0.857	0.000	0.857
Description: Continue to develop capabilities.					
FY 2022 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Transition to organic sustainment. Set up small scale deployment the next URT training system to test the software before full scale implementation and to continue software development. Continue development of new training simulation software to replace the current software utilized in the RPA Instrument Qualification Course to train RPA pilots. Continue effort to develop organic software capabilities and replace proprietary software.</p> <p>FY 2023 Base Plans: Continue development of new training simulation software to replace the current software utilized in the RPA Instrument Qualification Course to train RPA pilots. Continue effort to develop organic software capabilities and replace proprietary software. Move from small scale development into full scale implementation across both RPA Pilot and Sensor Operator training. Concurrently, software development will continue with feedback from small scale testing.</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to full scale implementation and economic adjustments.</p>					
Accomplishments/Planned Programs Subtotals	0.714	0.814	0.857	0.000	0.857

	FY 2021	FY 2022
Congressional Add: Undergraduate RPA Training Support (Congressional Add)	2.800	3.080
FY 2021 Accomplishments: Upgrade current computer systems to Windows 10 to comply with DoD cybersecurity mandates.		
FY 2022 Plans: Continue computer system upgrades to comply with DoD cyber security mandates.		
Congressional Adds Subtotals	2.800	3.080

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
• RDTE 07 0604233F: <i>Specialized Undergraduate Flight Training</i>	3.514	3.894	0.857	0.000	0.857	0.875	0.891	0.909	0.930	0.000	11.870

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force	Date: April 2022
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks
 FY21 Increase: Transition support of Predator Reaper Integrated Mission Environment (PRIME) from contractor support to organic sustainment at Oklahoma City Air Logistics Complex, Tinker AFB, OK. Only other item from (C) above would have to be paid directly from AETC using 3400 funding, if needed.

PRIME Desktop Training System (DTS) Support Accomplishments: Transition support of PRIME from contractor support to organic sustainment at Oklahoma City Air Logistics Complex, Tinker AFB, OK. Upgrade current computer systems to Windows 10 to comply with DoD cybersecurity mandates.

D. Acquisition Strategy

Transition support of PRIME from contractor support to organic sustainment at Oklahoma City Air Logistics Complex, Tinker AFB, OK.

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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
<i>Undergraduate RPA Training Support</i>																												
URT Training System Design/Development																												
URT Training System Test Implementation																												
URT Training System Continued Design/Development																												
URT Training System Full Scale Implementation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 674101 / <i>Undergraduate Remotely Piloted Aircraft Training</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Undergraduate RPA Training Support</i>				
URT Training System Design/Development	1	2021	2	2022
URT Training System Test Implementation	2	2022	1	2023
URT Training System Continued Design/Development	1	2023	1	2024
URT Training System Full Scale Implementation	4	2023	4	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				Project (Number/Name) 676035 / <i>T-6 Operational System Development</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
676035: <i>T-6 Operational System Development</i>	-	1.560	0.223	7.585	0.000	7.585	39.085	35.929	6.231	6.369	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 7, PE 0604233F, project 676035, T-6 Avionics Modernization [Avionics Replacement Program (ARP)], is a new start.

A. Mission Description and Budget Item Justification

T-6 Operational System Development continues follow on development activities to JPATS including but not limited to studies and development efforts, instructional courseware, and logistics support to include Diminishing Manufacturing Sources (DMS) and development activities related to DMS. Included is development for the Next Generation On-Board Oxygen Generation System, Automatic Dependent Surveillance Broadcast Out (ADS-B Out), Crash Survivable Recorder (CSR), Avionics Replacement Program (ARP), Heads Up Display (HUD), Enhanced Mission Cockpit (EMC) and associated upgrades. There are currently 443 aircraft [442 AETC & 1 TA-D Test aircraft] in the Air Force inventory. Remaining service life is up to 39 years from the final delivery in May 2010.

Funding contained in this platform's documentation directly aids Air Education Training Command flying training enterprise to continue its overall pilot production increase starting in FY2020 thus reducing the USAF Pilot Shortage.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Specialized Undergraduate T-6 Pilot Training weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2021 \$00.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$00.000 million is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: T-6A (JPATS) Studies and Analysis	0.000	0.223	0.000	0.000	0.000
Description: T-6A (JPATS) studies and development activities including but not limited to: Engine Preservation/ Upgrade Development, On-Board Oxygen Generation System (OBOGS) Characterization Study, Next Generation On-Board Oxygen Generation System Study, Supplemental Oxygen System Study, Cockpit Environmental Monitoring/Analysis, and Physiological Events (PE) Analysis, and Heads Up Display (HUD)/ Enhanced Mission Cockpit (EMC) Study/Analysis. Includes engineering and contractor support/services and Program Support Costs (PSC).					
FY 2022 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>			
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continue T-6A aircraft studies and development activities including but not limited to: engine preservation development, cockpit environmental monitoring/analysis, Heads Up Display (HUD)/Enhanced Mission Cockpit (EMC), diminishing manufacturing source issues, and upgrades to on-aircraft software packages. FY 2023 Base Plans: N/A FY 2023 OCO Plans: N/A FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to completion of T-6A development activities.					
Title: T-6 Avionics Modernization [Avionics Replacement Program (ARP)] Description: This is a New Start. T-6A Avionics Replacement Program (ARP). Current T-6A avionics are comprised of analog and 1st generation digital components which are increasingly by DMSMS resulting in reduced Aircraft Availability (AA) and increased life-cycle sustainment costs. The current federated nature of the avionics suite compounds engineering and integration costs of replacement components. No less than 23 components impacts by DMSMS will be replaced by the Avionics Replacement Program (ARP) to improve reliability, availability and reduce system sustainment costs, via a modern, integrated, open-system avionics suite. The ARP will address DMSMS issues, current T-6A FAA compliance issues and fulfill outstanding safety recommendations. The solution will be incorporated into all 442 AETC aircraft and 80 Ground Based Trainers. FY 2022 Plans: N/A FY 2023 Base Plans: Address DMSMS issues, current T-6A FAA compliance issues and fulfill outstanding safety recommendations. Development contract to be awarded in FY 2023. FY 2023 OCO Plans: N/A FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to initial award of Developmental Contract for ARP DMSMS.	0.000	0.000	7.585	0.000	7.585
Title: Crash Survivable Recorder (CSR)	1.560	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force	Date: April 2022
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Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>Description: Crash Survivable Recorder (CSR) will provide the aircraft with a system that will meet the minimum crash survivable data collection capability as outlined in Air Force Instruction 63-133 Aircraft Information Program (Change 1, 4 November 2010) and SECDEF Memo of 22 June 06, Reducing Preventable Accidents. Includes engineering and contractor support/services and PMA costs.</p> <p>FY 2022 Plans: N/A</p> <p>FY 2023 Base Plans: N/A</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: N/A</p>					
Accomplishments/Planned Programs Subtotals	1.560	0.223	7.585	0.000	7.585

C. Other Program Funding Summary (\$ in Millions)										
<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023 Base</u>	<u>FY 2023 OCO</u>	<u>FY 2023 Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To Complete Total Cost</u>
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts</i>	-	-	-	-	-	-	-	-	-	
• APAF 05 Line Item JPAT00: T-6	1.560	0.223	7.585	-	7.585	39.085	35.929	6.231	6.369	Continuing Continuing

Remarks

D. Acquisition Strategy
 The Air Force is lead service for the T-6 Operational Systems Development program and currently manages upgrades to the entire family of systems for both the Air Force and Navy. T-6 Operational Systems Development acquisition strategy for satisfying emerging software and hardware requirements is designed to enable competition and control cost. Development resulting from Diminishing Manufacturing Sources and Material Shortages requirement will be evaluated and implemented incrementally to efficiently deliver required capabilities to AETC.

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

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</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			
T-6 Operational System Development Crash Survivable Recorder	C/FFP	Scientific Research Corp : Atlanta, GA	-	1.560	Jan 2021	-		-		-		-	0.000	1.560	-
T-6 Avionics Modernization [Avionics Replacement Program (ARP)]	TBD	Not specified. : TBD	-	-		-		5.985	Apr 2023	-		5.985	Continuing	Continuing	-
Subtotal			-	1.560		-		5.985		-		5.985	Continuing	Continuing	N/A

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			
Test and Evaluation	C/CPAF	Not specified. : Tinker, OK	-	-		0.223	May 2022	-		-		-	Continuing	Continuing	-
Subtotal			-	-		0.223		-		-		-	Continuing	Continuing	N/A

Remarks
Continue Unknown Physiological Event's studies.

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			
Direct Cite Civ Pay	C/TBD	Not specified. : TBD	-	-		-		1.600		-		1.600	Continuing	Continuing	-
Program Support Cost (PSC) Contract Services	C/FFP	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
PSC Other Government Costs	Various	Not specified. : TBD	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	-		-		1.600		-		1.600	Continuing	Continuing	N/A

Remarks
The ARP Program will utilize Direct Cite Authority for 11 positions estimated at approximately \$1.6M.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force							Date: April 2022				
Appropriation/Budget Activity 3600 / 7			R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>				
	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	-	1.560	0.223	7.585	-	7.585	Continuing	Continuing	N/A		

Remarks
 The Avionics Replacement Program (ARP) will utilize Direct Cite Authority for 11 positions at approximately \$1.6M.

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>

FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
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

Joint Primary Aircraft Training System	
T-6 (JPATS) Studies	
Avionics Systems Development	
T-6 Crash Survivable Recorder	
Crew Systems Development	
T-6 Enhanced On-Board Oxygen Generation System	
Avionics Modernization	
T-6 Avionics Replacement Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676035 / <i>T-6 Operational System Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Joint Primary Aircraft Training System</i>				
T-6 (JPATS) Studies	1	2021	4	2027
<i>Avionics Systems Development</i>				
T-6 Crash Survivable Recorder	1	2021	4	2022
<i>Crew Systems Development</i>				
T-6 Enhanced On-Board Oxygen Generation System	1	2021	4	2021
<i>Avionics Modernization</i>				
T-6 Avionics Replacement Development	3	2023	3	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force										Date: April 2022		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>				Project (Number/Name) 676037 / <i>T-38 Operational System Development</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
676037: <i>T-38 Operational System Development</i>	-	8.364	4.472	9.595	0.000	9.595	2.263	0.144	0.146	0.147	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The T-38 RDT&E budget is focused on modifications needed to overcome part obsolescence, aging of critical components, emerging safety concerns, and cybersecurity risks. Operational Flight Program (OFP) block upgrades incorporate software improvements for the aircraft and aircrew training devices (ATDs) to address flight safety issues, and to comply with new capabilities mandated by Department of Defense, Federal Aviation Administration, or National Airspace System.

RDT&E requirements for the T-38C fleet are summarized below in the Terminal Avionics Replacement Program (TARP). This effort includes both RDT&E and Procurement funding to replace aging and obsolete avionics components that can no longer be repaired. Planned components include, but are not limited to, the Electronic Engine Display (EED), Multi-Function Display (MFD), Video Data Transfer Unit (VDTU), and Heads-Up Display Camera (HUDC). Failure to fund this effort will result in fleet-wide T-38C non-serviceability starting in Apr 2026.

RDT&E requirements for the T-38A/B fleet are summarized below in the Low-cost Avionics Modification Program (LAMP). LAMP addresses high failure rates in T-38A/B navigation system components, which are currently causing a safety risk to pilot spatial orientation. Flight restrictions associated with this risk are impacting F-22, U-2, and B-2 readiness. Planned component replacements include, but are not limited to, the Attitude Director Indicator and the Horizontal Situation Indicator. Failure to fund this effort will result in ongoing safety risk for the T-38A/B fleet, and increased impact to F-22, U-2, and B-2 readiness.

The T-38 Studies and Development effort outlined below captures ongoing and emerging RDT&E requirements, to include budget for flight test, OFP updates, and emerging obsolescence or safety issues. Failure to fund this effort will prevent the T-38 program from rapidly responding to emerging RDT&E requirements.

This requirement for T-38 programs supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D "Audits: audit of financial statements of Department of Defense components by independent external auditors."

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Specialized Undergraduate T-38 Pilot Training weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program elements 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY 2021 \$00.000 million was expended for civilian pay expenses in this program element, and in FY 2022 \$00.000 million is forecasted for civilian pay expenses in this program element.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: T-38C Terminal Avionics Replacement Program (TARP)	5.798	2.710	6.532	0.000	6.532

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>			
B. Accomplishments/Planned Programs (\$ in Millions)					
Description: Beginning in FY 2023, TARP is a subset and continuation of work started under Project 676037, T-38 Avionics Component Integration (AvCI). TARP is not a New Start.					
TARP develops replacements for four T-38C avionics components facing obsolescence. TARP includes, but is not limited to:					
1-2. Electronic Engine Display (EED) and Multi-Function Display (MFD): Without a replacement, T-38C aircraft will be grounded once the repair contract for EED and MFD expires in Mar 2026.					
3. Video Data Transfer Unit (VDTU): Compact Flash Cards that record flight data are no longer procurable, with inventory depleted in FY24. Without a functioning VDTU, the T-38C will be unsuitable for training purposes, with no ability to record flight data.					
4. Heads-Up Display Camera (HUDC): Without a replacement, the current HUDC will no longer function after the repair contract expires in Mar 2026. The HUDC is essential to the T-38C training mission, as a critical tool for student/instructor feedback.					
FY 2022 Plans: Continue development activities for EED and MFD replacement; start development for VDTU replacement (4th quarter).					
FY 2023 Base Plans: Continue development of EED, MFD, and VDTU; begin test for EED and MFD; begin development of HUDC.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to full year of VDTU and HUDC development, and start of EED and MFD flight test.					
Title: T-38A/B Low-Cost Avionics Modification Program (LAMP)					
Description: Beginning in FY 2023, LAMP is a subset and continuation of work started under Project 676037, T-38 Avionics Component Integration (AvCI). LAMP is not a New Start.					
	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
	0.000	0.050	1.598	0.000	1.598

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force			Date: April 2022		
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>			
B. Accomplishments/Planned Programs (\$ in Millions)					
LAMP will replace the current Attitude Director Indicator (ADI) and Horizontal Situation Indicator (HSI), which have low Mean Times Between Failure (MTBF). Ongoing LAMP activity may either refurbish or replace other navigation components, to include the Attitude Gyro Control Assembly, Rate Switching Gyro, Rate Gyro Transmitter, Servo-Amplifier, and Flight Director Computer.					
FY 2022 Plans: N/A					
FY 2023 Base Plans: Integrate and test new primary flight references for the T-38A/B fleet.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased to address emerging primary flight reference safety risk.					
Title: T-38 Studies and Development					
Description: Studies and development (including flight test) to support:					
1. Engineering Change Proposals to overcome part obsolescence issues, maintain system currency, or address emerging safety concerns.					
2. T-38C Operational Flight Program (OFP) block upgrades for aircraft and aircrew training devices (ATDs) to implement interface improvements, cybersecurity enhancements, airspace mandates, or other user requirements.					
FY 2022 Plans: Complete Block 11 OFP development and test.					
FY 2023 Base Plans: Execute emergent engineering change proposals, to include investigation into a speed brake warning indicator for T-38A/B aircraft.					
FY 2023 OCO Plans:					
	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
	2.566	1.712	1.465	0.000	1.465

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: Funding decreased due to the completion of Block 11 OFP development and test.					
Accomplishments/Planned Programs Subtotals	8.364	4.472	9.595	0.000	9.595

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
• APAF 05 Line Item T03800: T-38	40.806	45.039	111.668	-	111.668	114.508	82.661	51.862	87.447	147.361	681.352

Remarks

D. Acquisition Strategy
 The T-38 Platform Operations System Development acquisition strategy for satisfying emerging software and hardware requirements is designed to enable competition and cost control. Developmental requirements resulting from Diminishing Manufacturing Sources and Material Shortages research and reporting will be evaluated and implemented incrementally to efficiently deliver required capabilities to using commands. T-38C block upgrades will be required to maintain aircraft airworthiness and will be implemented based on Air Education and Training Command requirements. An appropriate level of technical data rights is required by all current support contracts.

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676037 / <i>T-38 Operational System Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
T-38C EED/MFD Development				
Development	4	2021	1	2024
Test	2	2023	3	2024
T-38C VDTU/HUDC Development				
Development	4	2022	2	2024
Test	1	2024	3	2024
T-38C Block 11 Upgrade				
Development	4	2021	1	2023
Test	3	2022	4	2023
T-38 A/B LAMP				
Development	3	2022	4	2022
Test	4	2022	1	2023
T-38 Studies & Analysis				
Development/Test	1	2024	4	2027