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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	0.000	8.565	15.427	0.000	15.427	11.130	4.386	4.479	4.557	Continuing	Continuing
674101: <i>Undergraduate Remotely Piloted Aircraft Training</i>	-	0.000	0.720	0.734	0.000	0.734	0.756	0.777	0.802	0.816	Continuing	Continuing
676034: <i>Joint Primary Aircraft Training System (JPATS)</i>	-	0.000	0.683	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.683
676035: <i>T-6 Operational System Development</i>	-	0.000	4.904	1.811	0.000	1.811	3.296	2.455	2.501	2.544	Continuing	Continuing
676037: <i>T-38 Operational System Development</i>	-	0.000	2.258	12.882	0.000	12.882	7.078	1.154	1.176	1.197	0.000	25.745

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): N42

Note

This program, BA 07 PE 0604233F, project 676037, Studies and Development Efforts, is a new start.

A. Mission Description and Budget Item Justification

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

Undergraduate Remotely Piloted Aircraft Training supports Air Education and Training Command's (AETC) implementation of Undergraduate Remotely Piloted Aircraft (RPA) Training (URT). This program provides and maintains the currency of Predator Reaper Integrated Mission Environment (PRIME) Desktop Training System (DTS).

The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34 respectively) and their associated Ground Based Training Systems (GBTS) with the T-6 and its GBTS. The Air Force is the Executive Service.

T-6 Operational System Development continues follow on development activities to JPATS including studies & development efforts to support future ACAT III Engineering Change Proposals (ECPs) to the T-6 Aircraft, instructional courseware, and logistics support to include Diminishing Manufacturing Sources and Material Shortages (DMSMS) and development activities related to DMSMS. Included is development for the FAA mandated ACAT III program for ADS-B Out and associated upgrades.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

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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T-38 program will continue development in FY2017 of a replacement Mission Display Processor (MDP), refurbishment of the existing Heads-Up Display (HUD), development and integration of an Automatic Dependent Surveillance - Broadcast (ADS-B) solution as well as replacement of the Very High Frequency (VHF) Communication radio system and the VHF Navigation system. System testing is projected to begin in FY2017 and production and deployment of the replacement the systems will begin in late FY2017 and continue through FY2021.

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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	10.465	4.972	0.000	4.972
Current President's Budget	0.000	8.565	15.427	0.000	15.427
Total Adjustments	0.000	-1.900	10.455	0.000	10.455
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-1.900			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	10.455	0.000	10.455

Change Summary Explanation

FY16 Congressional Directed Reduction -1.9M - Forward Financing, JPATS
 FY17 Increase to support T-38 Avionics Upgrade Program for obsolescence issues and FAA mandates

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
674101: <i>Undergraduate Remotely Piloted Aircraft Training</i>	-	0.000	0.720	0.734	0.000	0.734	0.756	0.777	0.802	0.816	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 Predator Reaper Integrated Mission Environment (PRIME) Desktop Training System (DTS) to prepare undergraduate students for entry in RPA Formal Training Units (FTU). PRIME has completed 6 Phases of development and is now at baseline functionality. PRIME evolved from a Defense Advanced Research Projects Agency (DARPA) A-10 Warthog desktop trainer into a desktop similar to the Reaper training system now in use to train undergraduate RPA pilots and sensor operators. PRIME currently emulates the MQ-9 Reaper and needs to keep pace with that baseline system and expand to other RPAs in order to maintain concurrency and relevancy.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Predator Reaper Integrated Mission Environment (PRIME) support	0.000	0.720	0.734	-	0.734
Description: Add Phase 7 operational capabilities.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Extend and enhanced interoperability between PRIME and Modern Air Combat Environment (MACE) software incorporated in Phase 6 for instructor operations and entity generation. Add additional instrumentation functionality. Add record and playback functionality. Add multiple emergency missions. Add additional entity functionality.					
FY 2017 Base Plans: Continue to extend and enhanced interoperability between PRIME and Modern Air Combat Environment (MACE) software incorporated in Phase 7 for instructor operations and entity generation. Add additional instrumentation functionality. Add record and playback functionality. Add multiple emergency missions. Add additional entity functionality. Begin Planning for Phase 8.					
Accomplishments/Planned Programs Subtotals	0.000	0.720	0.734	-	0.734

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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>

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Contract via Training Systems Acquisition III (TSA III) to Cubic Corporation, parent company of PRIME software data rights owner (Intific).

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
3600 / 7				PE 0604233F / Specialized Undergraduate Flight Training					674101 / Undergraduate Remotely Piloted Aircraft Training						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Undergraduate Remotely Piloted Aircraft Training Phased planning, design, and development of software updates	SS/FFP	Not specified. : TBD	-	0.000		0.720	Mar 2016	0.664	Mar 2017	0.000		0.664	Continuing	Continuing	-
Subtotal			-	0.000		0.720		0.664		0.000		0.664	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Undergraduate Remotely Piloted Aircraft Training PMA	TBD	Program Office : WPAFB, OH	-	0.000		0.000		0.070	Oct 2016	0.000		0.070	Continuing	Continuing	-
Subtotal			-	0.000		0.000		0.070		0.000		0.070	-	-	-
Project Cost Totals			-	0.000		0.720		0.734		0.000		0.734	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force							Date: February 2016			
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>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force			Date: February 2016				
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 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
Predator Reaper Integrated Mission Environment (PRIME) Contract Award					██████████																							
Phase 7 Design/Development					██████████																							
Phase 8 Planning									██████████																			
Phase 8 Design/Development													██████████															
Phase 9 Planning																												
Phase 9 Design/Development													██████████															
Phase 10 Planning																												
Phase 10 Design/Development																					██████████							
Phase 11 Planning																												
Phase 11 Design/Development																									██████████			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
Predator Reaper Integrated Mission Environment (PRIME) Contract Award	2	2016	2	2017
Phase 7 Design/Development	3	2016	3	2017
Phase 8 Planning	1	2017	1	2018
Phase 8 Design/Development	3	2018	2	2019
Phase 9 Planning	4	2018	4	2018
Phase 9 Design/Development	1	2019	1	2020
Phase 10 Planning	1	2020	1	2020
Phase 10 Design/Development	2	2020	1	2021
Phase 11 Planning	1	2021	1	2021
Phase 11 Design/Development	2	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676034 / <i>Joint Primary Aircraft Training System (JPATS)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676034: <i>Joint Primary Aircraft Training System (JPATS)</i>	-	0.000	0.683	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.683
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Project MDAP/MAIS Code: N42

A. Mission Description and Budget Item Justification

The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34, respectively) and associated Ground Based Training Systems (GBTS). Additionally the US Army purchased four T-6 Army Variant aircraft to replace the T-34 aircraft for the Army Test and Evaluation Command. The USAF/USN T-6 aircraft and GBTS are used to train entry-level student aviators in the fundamentals of flying so they can transition into advanced training tracks leading to qualification as military pilots, combat systems officers, and naval flight officers. The program includes the purchase of aircraft, simulators, and other associated ground-based training devices, Training Integration Management System (TIMS), instructional courseware, and logistics support to include Diminishing Manufacturing Sources and Material Shortages (DMSMS) and development activities related to DMSMS.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Joint Primary Aircraft Training System (JPATS) Studies</p> <p>Description: JPATS studies and development activities including but not limited to: T-6 Power Management Unit (PMU) software upgrade, parachute surveillance study, ejection seat, and safe/arm handle development.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Continue JPATS studies and development activities including but not limited to additional phases of the 6 Engine Upgrade Studies, Phase 2 of the Parachute Surveillance study, ejection seat alternative to existing T-6A/B/D, and safe/arm handle development</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.176	0.000	0.000	0.000
<p>Title: Engine Upgrade Studies</p>	0.000	0.278	0.000	0.000	0.000

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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) 676034 / <i>Joint Primary Aircraft Training System (JPATS)</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF: BA06: Line Item # 000999: <i>Initial Spares/Repair Parts</i>	4.248	0.875	0.000	0.000	0.000	4.449	2.631	2.679	2.728	-	-
• APAF: BA05: Line Item # JPAT00: <i>T-6</i>	14.484	14.968	12.765	0.000	12.765	51.127	26.035	26.486	26.975	Continuing	Continuing
• APN: BA03: Line Item # 033900: <i>JPATS</i>	0.000	8.914	5.849	0.000	5.849	0.000	0.000	0.000	0.000	-	-
• APN: BA05: Line Item # 057100: <i>JPATS Series</i>	1.085	12.537	17.401	0.000	17.401	38.354	52.303	38.872	39.655	Continuing	Continuing
• APN: BA06: Line Item # 060500: <i>Spares & Repair Parts</i>	0.127	0.264	0.264	0.000	0.264	0.140	0.000	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

JPATS was competitively awarded with the intent of maximizing the use of commercially available equipment and best commercial practices. Initially, the JPATS Program competitively awarded two contracts: a Firm Fixed Price (FFP) Contractor Logistics Support (CLS) Operations and Maintenance funded contract and a Fixed Price Incentive Firm Target (FPIF) manufacturing development (MD)/production contract with seven options. The follow-on contract production for both the air vehicle and GBTS was awarded as a FAR Part 15 action. The FFP CLS Operations and Maintenance funded contract is a FAR Part 15 action.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
3600 / 7				PE 0604233F / Specialized Undergraduate Flight Training				676034 / Joint Primary Aircraft Training System (JPATS)								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
JPATS Studies	Various	Various : Various	-	0.000		0.176	Feb 2016	0.000		0.000		0.000	0.000	0.176	TBD	
JPATS Engine Upgrade Study	C/CPFF	BDC : Various	-	0.000		0.278	Feb 2016	0.000		0.000		0.000	0.000	0.278	TBD	
JPATS High Cycle Fatigue Research	C/FFP	Universal Technology Corp : Dayton, OH	-	0.000		0.229	Feb 2016	0.000		0.000		0.000	0.000	0.229	TBD	
Subtotal			-	0.000		0.683		0.000		0.000		0.000	0.000	0.683	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Subtotal			-	-		-		-		-		-	-	-	-	
Project Cost Totals			-	0.000		0.683		0.000		0.000		0.000	0.000	0.683	-	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676034 / <i>Joint Primary Aircraft Training System (JPATS)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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 (JPATS) Studies					████████████████████																							
JPATS Engine Upgrade Studies					████████████████████																							
JPATS High Cycle Fatigue Research					████████████████████																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0604233F / <i>Specialized Undergraduate Flight Training</i>	Project (Number/Name) 676034 / <i>Joint Primary Aircraft Training System (JPATS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Joint Primary Aircraft Training System (JPATS) Studies	2	2016	4	2017
JPATS Engine Upgrade Studies	2	2016	2	2017
JPATS High Cycle Fatigue Research	2	2016	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force										Date: February 2016		
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676035: <i>T-6 Operational System Development</i>	-	0.000	4.904	1.811	0.000	1.811	3.296	2.455	2.501	2.544	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: N42												
A. Mission Description and Budget Item Justification												
T-6 Operational System Development continues follow on development activities to JPATS including studies & development efforts to support future ACAT III Engineering Change Proposals (ECPs) to the T-6 Aircraft, instructional courseware, and logistics support to include Diminishing Manufacturing Sources and Material Shortages (DMSMS) and development activities related to DMSMS. Included is development for the FAA mandated ACAT III program for Automatic Dependent Surveillance - Broadcast (ADS-B) Out and associated upgrades.												
B. Accomplishments/Planned Programs (\$ in Millions)												
							FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	
Title: T-6 (JPATS) Studies							0.000	4.301	1.573	0.000	1.573	
Description: T-6 studies and development activities to support engine upgrades and future ACAT III Engineering Change Proposals (ECPs) to the T-6 (JPATS) aircraft and engine.												
FY 2015 Accomplishments: N/A												
FY 2016 Plans: Continue JPATS studies and development activities including but not limited to additional phases of the 6 Engine Upgrade Studies, Phase 2 of the Parachute Surveillance study, Safe/Arm Handle development, Crash Survivable Cockpit Voice Recorder (CSCVR), and ejection seat alternative to existing T-6A/B/D.												
FY 2017 Base Plans: Continue T-6 Aircraft studies and development activities including but not limited to: the T-6 Power Management Unit (PMU) Software Upgrade study, parachute surveillance study, safe/arm handle development, Crash Survivable Cockpit Voice Recorder (CSCVR), ejection seat alternatives, and engine upgrade studies.												
FY 2017 OCO Plans: N/A												
Title: Avionics Upgrades for FAA (Federal Aviation Administration) Compliance							0.000	0.367	0.238	0.000	0.238	

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Description: The T-6 Automatic Dependent Surveillance Broadcast (ADS-B) Out program includes the component selection, integration, test and certification of ADS-B Out capability for the T-6A aircraft and Ground Based Training System (GBTS) to meet FAA compliance.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Begin the development, integration, test, and certification of the Automatic Dependent Surveillance Broadcast (ADS-B) Out capability in the T-6 Training System to comply with the January 1, 2020 Federal Aviation Administration (FAA) ADS-B Out mandate.</p> <p>FY 2017 Base Plans: Continue the development, integration, test, and certification of the Automatic Dependent Surveillance Broadcast (ADS-B Out) capability in the T-6 Training System to comply with the January 1, 2020 Federal Aviation Administration (FAA) ADS-B Out mandate.</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: High Cycle Engine Fatigue Research</p> <p>Description: Analysis of High Cycle Fatigue (HCF) and Structural Health Monitoring (SHM) of the T106-PW-100 engine.</p> <p>FY 2016 Plans: Continue research and analysis of High Cycle Fatigue (HCF) and Structural Health Monitoring (SHM)of the T106-PW-100 engine.</p>	-	0.236	-	-	-
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Accomplishments/Planned Programs Subtotals	0.000	4.904	1.811	0.000	1.811
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN: BA05: Line Item # 057100: JPATS Series	1.085	12.537	17.401	0.000	17.401	38.354	52.303	38.872	39.655	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

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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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>						
• APN: BA06: Line Item # 060500: <i>Spares & Repair Parts</i>	0.127	0.264	0.264	0.000	0.264	0.140	0.000	0.000	0.000	Continuing	Continuing
• APAF: BA06: Line Item # 000999: <i>Initial Spares/Repair Parts</i>	4.248	0.875	0.000	0.000	0.000	4.449	2.631	2.679	2.728	Continuing	Continuing
• APAF: BA05: Line Item # JPAT00: <i>T-6</i>	14.484	14.968	12.765	0.000	12.765	51.127	26.035	26.486	26.975	Continuing	Continuing
• APN: BA03: Line Item # 033900: <i>JPATS</i>	0.000	8.914	5.849	0.000	5.849	0.000	0.000	0.000	0.000	-	-

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.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force **Date:** February 2016

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 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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 T-6 (JPATS) Studies	Various	Various : Various	-	0.000		4.301	Mar 2016	1.573	Mar 2017	0.000		1.573	Continuing	Continuing	TBD
T-6 Operational System Development Avionics Upgrades for FAA Compliance	C/FFP	TBD : TBD	-	0.000		0.367	Feb 2017	0.238	Feb 2017	0.000		0.238	Continuing	Continuing	3.536
T-6 Operational System Development High Cycle Fatigue Research	C/FFP	Universal Technology Corp : Dayton, OH	-	0.000		0.236	Feb 2017	0.000		0.000		0.000	Continuing	Continuing	-
Subtotal			-	0.000		4.904		1.811		0.000		1.811	-	-	-

Remarks
 Plan to fund ADS-B Out FY17 requirements with FY16 and FY17 budget.
 Plan to fund both FY16 and FY17 High Cycle Fatigue Research requirements with FY16 budget.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Subtotal			-	-		-		-		-		-	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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			
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Air Force		Date: February 2016
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 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
T-6 (JPATS) Studies	[REDACTED]																											
T-6 Avionics Upgrades for FAA Compliance	[REDACTED]																											
High Cycle Fatigue Research	[REDACTED]																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
T-6 (JPATS) Studies	2	2016	4	2021
T-6 Avionics Upgrades for FAA Compliance	3	2017	4	2018
High Cycle Fatigue Research	2	2017	1	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

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>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
676037: <i>T-38 Operational System Development</i>	-	0.000	2.258	12.882	0.000	12.882	7.078	1.154	1.176	1.197	0.000	25.745
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: N42

Note
This program, BA 07 PE 0604233F, project 676037, Studies and Development Efforts, is a new start.

A. Mission Description and Budget Item Justification

The T-38 is a twin engine, two seat (tandem), supersonic jet trainer used by Air Education and Training Command as an advanced trainer in Specialized Undergraduate Pilot Training. Modifications are budgeted to enhance operational capability while improving flight safety, reliability and maintainability. There are currently 505 T-38s in the Air Force inventory (53 T-38A, 6 AT-38B and 446 T-38C) with 4 T-38Cs pending removal. T-38s first entered service in 1962 and average over 48 years old.

T-38C avionics system obsolescence remediation efforts to qualify updated systems the T-38C will continue from FY2016 through 2018 with development of a replacement Mission Display Processor (MDP), refurbishment of the existing Heads-Up Display, development and integration of an Automatic Dependent Surveillance - Broadcast (ADS-B) solution as well as replacement of the VHF Communication radio system and the VHF Navigation radio system. The development and integration of an ADS-B solution will also include A/B aircraft.

Additionally, studies & development efforts to support future ACAT III Engineering Change Proposals (ECPs) to address obsolescence issues and the regular block upgrades are required to keep the system current these will be accomplished with O&M unless block upgrade provides additional capabilities. Block upgrades incorporate software and/or hardware improvements to comply with new capabilities mandated by Department of Defense, Federal Aviation Administration or National Airspace System (DoD/FAA/NAS) and to address flight safety issues. The block upgrades support the T-38C aircraft and Aircrew Training Devices (ATD).

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Avionics Post Production Support (APPS)	0.000	2.258	12.782	-	12.782
Description: T-38C Avionics System obsolescence remediation effort is intended to develop and qualify replacement components/LRUs that are becoming non-supportable. Systems include the MDP, HUD, VHF Communication and Navigation radios. Additionally the T-38C program will begin development of a solution for the FAA ADS-B (Out) mandate.					
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2016 Plans: Continue (from BA5) T-38C Avionics System obsolescence remediation efforts. Development and system integration efforts will continue for the MDP, HUD, VHF Communication and Navigation radios. Additionally, the T-38C program will continue development and integration of a solution for the FAA ADS-B (Out) mandate.					
FY 2017 Base Plans: T-38C Avionics System development and system integration efforts will be completed. Begin flight test planning and preliminary test for the MDP, HUD, VHF Communication and Navigation radios and ADS-B (Out) solution.					
Title: Studies and Development Efforts	0.000	0.000	0.100	-	0.100
Description: Studies and efforts to support future ACAT III Engineering Change Proposals (ECPs) to address obsolescence issues and the regular block upgrades are required to keep the system current.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Component Diminishing Manufacturing Sources and Material Shortages (DMSMS)issue studies.					
Accomplishments/Planned Programs Subtotals	0.000	2.258	12.882	-	12.882

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APAF: BA05: Line Item #T03800: T-38	28.845	30.604	45.090	0.000	45.090	54.692	97.503	25.795	26.269	-	-

Remarks

D. Acquisition Strategy
The T-38 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

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force		Date: February 2016
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>

implemented incrementally to efficiently deliver required capabilities to AETC in support of the pilot training program. System Block upgrades will be required to maintain aircraft airworthiness and will be implemented based on AETC requirements. An appropriate level of technical data rights is required by all current support contracts.

The AvCI contract is a Type D IDIQ contract competitively awarded to address T-38C avionics system obsolescence issues and provide CLS follow-on support. The AvCI contract was awarded 4 January 2016. Obsolescence remediation efforts will begin immediately and the follow-on CLS effort will begin 01 April 2017.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
3600 / 7				PE 0604233F / Specialized Undergraduate Flight Training						676037 / T-38 Operational System Development					
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
T-38 APPS Avionics System DMSMS mitigation efforts	C/FFP	The Boeing Company : St. Louis, MO	-	0.000		2.173	Jan 2016	11.672	Oct 2016	0.000		11.672	Continuing	Continuing	-
T-38 APPS Studies and Development Efforts	Various	TBD : TBD	-	0.000		0.000		0.100	May 2017	0.000		0.100	Continuing	Continuing	-
Subtotal			-	0.000		2.173		11.772		0.000		11.772	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Avionics system Flight Test	PO	412th FTS : Edwards AFB, CA	-	0.000		0.000		1.025		0.000		1.025	Continuing	Continuing	-
Subtotal			-	0.000		0.000		1.025		0.000		1.025	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PMA Contract support	C/FFP	Not specified. : TBD	-	0.000		0.030	Dec 2015	0.030	Dec 2016	0.000		0.030	Continuing	Continuing	-
Government Travel	Various	Not specified. : TBD	-	0.000		0.055	Oct 2015	0.055	Oct 2016	0.000		0.055	Continuing	Continuing	-
Subtotal			-	0.000		0.085		0.085		0.000		0.085	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Air Force								Date: February 2016			
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>				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals	-	0.000	2.258		12.882	0.000	12.882	-	-	-	

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Air Force		Date: February 2016
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	Start		End	
	Quarter	Year	Quarter	Year
AUP Block 11 Requirements	3	2017	4	2018
AUP Block 11 Design/Development	1	2019	4	2020
Heads-Up Display Development	1	2016	4	2017
Heads-Up Display Integration	3	2016	4	2017
Heads-Up Display Qualification Testing	2	2017	4	2017
Mission Display Processor Development	1	2016	4	2017
Mission Display Processor Integration	3	2016	4	2017
Mission Display Processor Qualification Testing	2	2017	1	2018
Automatic Dependent Surveillance Broadcast Development	1	2017	1	2018
Automatic Dependent Surveillance Broadcast Integration	2	2017	1	2018
Diminishing Manufacturing Sources and Material Shortages (DMSMS)	3	2017	1	2018
Automatic Dependent Surveillance Broadcast Qualification Testing	1	2018	2	2018
Very High Frequency Radio Development	1	2016	4	2016
Very High Frequency Radio Integration	2	2016	4	2016
Very High Frequency Radio Qualification Testing	1	2017	2	2017
Very High Frequency Navigation Unit Development	1	2016	4	2016
Very High Frequency Navigation Unit Integration	2	2016	4	2016
Very High Frequency Navigation Unit Qualification Testing	1	2017	2	2017