Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603216F / *Aerospace Propulsion and Power Technology*

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	91.041	56.789	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
633035: *Aerospace Power Technology*	-	21.233	10.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
634093: *Missile Rocket Propulsion Integ & Demo*	-	12.704	6.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
634921: *Aircraft Propulsion Subsystems Int*	-	40.312	17.411	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
635098: *Advanced Aerospace Propulsion*	-	16.792	23.266	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program develops and demonstrates technologies to achieve enabling and revolutionary advances in turbine, advanced-cycle, rocket, and space propulsion as well as electrical power, thermal management, and fuels. The program has five current projects, each focusing on technologies with a high potential to enhance the performance of existing and future Air Force weapon systems. The Aerospace Power Technology project develops and demonstrates adaptive power and thermal management components, controls, and systems for high-power payloads and aircraft as part of energy-optimized aircraft development. The Aircraft Propulsion Subsystems Integration project develops demonstrator engines by integrating the engine cores demonstrated in the Advanced Turbine Engine Gas Generator project with low-pressure components. The Advanced Aerospace Propulsion project develops the scramjet propulsion cycle to a technology readiness level appropriate for in-flight demonstration and for full integration with other engine cycles (including turbine and rocket based). The Advanced Turbine Engine Gas Generator project develops and demonstrates core turbine engine technologies for current and future aircraft propulsion systems. The Missile Rocket Propulsion project develops and demonstrates innovative rocket propulsion technologies, propellants, and manufacturing techniques.

In FY 2025, the RDT&E Budget Activity 03 (BA03) Aerospace Propulsion and Power Technology efforts and activities under PE 0603216F, are transferred to PE 0603211F, Aerospace Technology Dev/Demo for increased integration between airframe, flight control, propulsion, electrical, power and thermal management.

In FY 2025, the entirety of PE 0603216F, Aerospace Propulsion and Power Technology, Project 633035 Aerospace Power Technology, is transferred to PE 0603211F, Aerospace Technology Dev/Demo, Project 634927 Flight Systems Control.

In FY 2025, the entirety of PE 0603216F, Aerospace Propulsion and Power Technology, Project 634093 Missile Rocket Propulsion Integ & Demo, is transferred to PE 0603211F, Aerospace Technology Dev/Demo, Project 634093 Missile Rocket Propulsion Integ & Demo.

In FY 2025, the entirety of PE 0603216F, Aerospace Propulsion and Power Technology, Project 634921 Aircraft Propulsion Subsystems Int, is transferred to PE 0603211F, Aerospace Technology Dev/Demo, Project 634921 Aircraft Propulsion Subsystems Int.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603216F / *Aerospace Propulsion and Power Technology*

In FY 2025, the entirety of PE 0603216F, Aerospace Propulsion and Power Technology, Project 635098 Advanced Aerospace Propulsion, is transferred to PE 0603211F, Aerospace Technology Dev/Demo, Project 634926 High Speed Systems Integ & Demo.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver science & technology capabilities. The use of program funds in this program element would be in addition to the civilian pay expenses budgeted in program elements 0601102F, 0602020, 0602102F, 0602201F, 0602202F,0602203F, 0602204F, 0602602F, 0602605F, 0602788F, 0602298F, and 1206601SF.

This program element may include necessary expenses to support the operation and maintenance of facilities to manage, execute, and deliver science and technology capabilities.

Projects in this program have been coordinated through the Department of Defense (DoD) Science and Technology (S&T) Executive Committee process to harmonize efforts and eliminate duplication.

This program is in Budget Activity 3, Advanced Technology Development because this budget activity includes development of subsystems and components and efforts to integrate subsystems and components into system prototypes for field experiments and/or tests in a simulated environment.

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	94.540	56.789	72.309	0.000	72.309
Current President's Budget	91.041	56.789	0.000	0.000	0.000
Total Adjustments	-3.499	0.000	-72.309	0.000	-72.309
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.080	0.000			
• SBIR/STTR Transfer	-3.255	0.000			
• Other Adjustments	-0.324	0.000	-72.309	0.000	-72.309

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: 633035: *Aerospace Power Technology*		
Congressional Add: *Program increase - Silicon carbide research*	9.409	-
Congressional Add Subtotals for Project: 633035	9.409	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force	Date: March 2024
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603216F / *Aerospace Propulsion and Power Technology*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: 634093: *Missile Rocket Propulsion Integ & Demo*		
Congressional Add: *Program increase - Altitude chamber infrastructure upgrades*	4.817	-
Congressional Add: *Advanced hybrid engine rocket development*	4.817	-
Congressional Add Subtotals for Project: 634093	9.634	-
Project: 634921: *Aircraft Propulsion Subsystems Int*		
Congressional Add: *Low spool generator capabilities*	4.634	-
Congressional Add: *Program increase - turbo air cool HTPEM hydrogen fuel cell development*	11.878	-
Congressional Add Subtotals for Project: 634921	16.512	-
Congressional Add Totals for all Projects	35.555	-

Change Summary Explanation

FY 2025 funding decreased compared to FY 2024 by $72.309 million. $50.633 million of the decrease is due to the transfer from PE 0632016F, Aerospace Propulsion and Power Technology, to PE 0632011F, Aerospace Technology Dev & Demo. $21.676 million of the decrease is due to re-prioritization to meet the nation's future security needs.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 3	R-1 Program Element (Number/Name) PE 0603216F / *Aerospace Propulsion and Power Technology*	Project (Number/Name) 633035 / *Aerospace Power Technology*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
633035: *Aerospace Power Technology*	-	21.233	10.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops and demonstrates system and subsystem integration to include adaptive architectures, controls, actuation, electrical power, thermal management, and distribution for aerospace applications. This project develops and demonstrates the components, controls and systems required to satisfy the operational needs of current and future aircraft and enables the use of future high-power payloads. This technology enhances reliability and survivability, and reduces vulnerability, weight, and life cycle costs of air platforms. The electrical power system components developed are projected to provide a two-fold to five-fold improvement in aircraft reliability and maintainability, and a reduction in power system weight. This project is integrated into energy optimized aircraft efforts and power and thermal programs.

In FY 2025, the entirety of PE 0603216F, Aerospace Propulsion and Power Technology, Project 633035 Aerospace Power Technology, is transferred to PE 0603211F, Aerospace Technology Dev/Demo, Project 634927 Flight Systems Control.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: High Power Aircraft Subsystem Technologies	11.824	10.067	0.000
Description: Develop and demonstrate integrated architecture, controls and components for power generation, conditioning, and distribution; energy storage components; and thermal management and subsystem technologies for integration into high power aircraft.			
FY 2024 Plans: Complete development and demonstration of integrated, adaptive megawatt- class tactical aircraft power and thermal capability. Complete development and demonstration of megawatt class architecture, controls and integration. Initiate development and demonstration of integrated power, thermal, and propulsion technologies for medium-scale systems. Initiate architecture and technology assessment and digital integration.			
FY 2025 Plans: - Starting in FY 2025, this work will be performed under PE 0603211F, Aerospace Technology Dev/Demo, Project 634927 Flight Systems Control, High Power Aircraft Subsystem Technologies effort.			
FY 2024 to FY 2025 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 3	**R-1 Program Element (Number/Name)** PE 0603216F / *Aerospace Propulsion and Power Technology*	**Project (Number/Name)** 633035 / *Aerospace Power Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 decreased compared to FY 2024 by $10.067 million. Funding decreased due to transfer of High Power Aircraft Subsystem Technologies effort to PE 0603211F, Aerospace Technology Dev/Demo, Project 634927 Flight Systems Control, High Power Aircraft Subsystem Technologies effort.			
Accomplishments/Planned Programs Subtotals	11.824	10.067	0.000

	FY 2023	FY 2024
Congressional Add: Program increase - Silicon carbide research	9.409	-
FY 2023 Accomplishments: Conduct Congressionally directed efforts. This effort will be executed in Program 0603216F, Aerospace Propulsion and Power Technology, Project 633035, Aerospace Power Technology.		
Congressional Adds Subtotals	9.409	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 3	R-1 Program Element (Number/Name) PE 0603216F / *Aerospace Propulsion and Power Technology*	Project (Number/Name) 634093 / *Missile Rocket Propulsion Integ & Demo*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
634093: *Missile Rocket Propulsion Integ & Demo*	-	12.704	6.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops technologies for the sustainment of strategic systems (including solid rocket motor boosters and missile propulsion, post boost control, and aging and surveillance efforts) and tactical rockets. Characteristics such as environmental acceptability, affordability, reliability, responsiveness, reduced weight, and reduced operation and launch costs are emphasized. Increased life and performance of propulsion systems are key goals. Technology areas investigated include ground demonstrations of compact, lightweight, advanced propulsion technologies and high-energy propellants. Aging and surveillance thrusts for solid rocket motors could reduce lifetime prediction uncertainties for individual motors by fifty percent, enabling motor replacement for cause. The efforts in this project contribute to the sustainment of the rocket propulsion industry, providing rocket propulsion technology for the entire Department of Defense (DoD). The efforts in this project are reviewed by a DoD level steering committee annually for relevance to DoD missions.

This project includes the initiation and development of programs addressing DAF capability gaps and provides technologies for transformational future force capabilities. Transformational efforts will be identified through a competitive process and be responsive to DAF design priorities. Selected efforts will be designated as transformational, indicating enterprise-level priority.

In FY 2025, the entirety of PE 0603216F, Aerospace Propulsion and Power Technology, Project 634093 Missile Rocket Propulsion Integ & Demo, is transferred to PE 0603211F, Aerospace Technology Dev/Demo, Project 634093 Missile Rocket Propulsion Integ & Demo.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Ballistic Missile Technologies	3.070	6.045	0.000
Description: Develop and demonstrate missile propulsion and post-boost control systems technologies for ballistic missiles.			
FY 2024 Plans: Continue development and test of solid rocket motors relevant to defense needs such as large air-launched boosters for high speed weapon application. Continue to design and develop modeling and simulation tools that more fully describe the physical processes that occur during manufacture and/or operation, and that reduce predictive uncertainty in design and analysis. Continue development of advanced manufacturing processes for solid rocket motors including inert components, energetic components, fabrication systems and automated assembly operations.			
FY 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 3	**R-1 Program Element (Number/Name)** PE 0603216F / *Aerospace Propulsion and Power Technology*	**Project (Number/Name)** 634093 / *Missile Rocket Propulsion Integ & Demo*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
- Starting in FY 2025, this work will be performed under PE 0603211F, Aerospace Technology Dev/Demo, Project 634093 Missile Rocket Propulsion Integ & Demo, Missile Propulsion Technologies effort. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 decreased compared to FY 2024 by $6.045 million. Funding decreased due to transfer of Ballistic Missile Technologies effort to PE 0603211F, Aerospace Technology Dev/Demo, Project 634093 Missile Rocket Propulsion Integ & Demo, Missile Propulsion Technologies effort.			
Accomplishments/Planned Programs Subtotals	3.070	6.045	0.000

	FY 2023	FY 2024
Congressional Add: Program increase - Altitude chamber infrastructure upgrades ***FY 2023 Accomplishments:*** Conduct Congressionally directed efforts. This effort will be executed in Program 0603216F, Aerospace Propulsion and Power Technology, Project 64093, Missile Rocket Propulsion Integ & Demo.	4.817	-
Congressional Add: Advanced hybrid engine rocket development ***FY 2023 Accomplishments:*** Conduct Congressionally directed efforts. This effort will be executed in Program 0603216F, Aerospace Propulsion and Power Technology, Project 64093, Missile Rocket Propulsion Integ & Demo.	4.817	-
Congressional Adds Subtotals	9.634	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 3	R-1 Program Element (Number/Name) PE 0603216F / *Aerospace Propulsion and Power Technology*	Project (Number/Name) 634921 / *Aircraft Propulsion Subsystems Int*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
634921: *Aircraft Propulsion Subsystems Int*	-	40.312	17.411	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops and demonstrates technology to increase turbine engine operational reliability, durability, mission flexibility, and performance while reducing weight, fuel consumption, and cost of ownership. The Aircraft Propulsion Subsystems Integration (APSI) project includes demonstrator engines for manned systems and efficient small-scale propulsion for remotely piloted aircraft and cruise missile applications. The demonstrator engines integrate the core (high- pressure spool) technology developed under a joint multi-agency and aerospace industry project with the engine (low-pressure spool) technology such as fans, turbines, engine controls, mechanical systems, exhaust nozzles, and augmentors. Additionally, this project includes activities to improve propulsion safety and readiness. This project also focuses on integration of inlets, nozzles, engine-to-airframe compatibility, and power and thermal management subsystems technologies. The APSI project provides aircraft with potential for longer range and higher cruise speeds with lower specific fuel consumption, surge power for successful engagements, high sortie rates with reduced maintenance, reduced life cycle cost, and improved survivability, resulting in increased mission effectiveness. Technologies developed are applicable to sustained high-speed vehicles and responsive space launch. The Aircraft Propulsion Subsystems Integration project is focused on improving propulsion capabilities while at the same time reducing the cost of ownership. Anticipated technology advances include turbine engine improvements providing approximately twice the range for a sustained supersonic combat aircraft, doubling the time on station with ten times the power output for surveillance aircraft and propulsion for a high speed supersonic missile with double the range for time sensitive targets.

This project includes the initiation and development of programs addressing DAF capability gaps and provides technologies for transformational future force capabilities. Transformational efforts will be identified through a competitive process and be responsive to DAF design priorities. Selected efforts will be designated as transformational, indicating enterprise-level priority.

In FY2023, Core Engine Technologies, High Pressure Ratio Core Engine Technologies, and Adaptive Turbine Engine Core Technology efforts transferred from Program 0603216F, Aerospace Propulsion & Power Technology, Project 63681B, Advanced Turbine Engine Gas Generator to Program 0603216F, Aerospace Propulsion and Power Technology, Project 634921, Aircraft Propulsion Subsystems Integration in order to effectively and efficiently align resources to Aerospace Systems Core Technical Competencies.

In FY 2025, the entirety of PE 0603216F, Aerospace Propulsion and Power Technology, Project 634921 Aircraft Propulsion Subsystems Int, is transferred to PE 0603211F, Aerospace Technology Dev/Demo, Project 634921 Aircraft Propulsion Subsystems Int.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Missile/Remotely Piloted Aircraft Engine Performance	10.827	13.961	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 3	**R-1 Program Element (Number/Name)** PE 0603216F / *Aerospace Propulsion and Power Technology*	**Project (Number/Name)** 634921 / *Aircraft Propulsion Subsystems Int*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Description: Design, fabricate, and test component technologies for limited-life engines to improve the performance, durability, and affordability of missile and remotely piloted aircraft engines. ***FY 2024 Plans:*** Complete next innovative architecture, critical technologies and component designs for efficient small engines. Continue operational benefits analysis for missile and unmanned aerial vehicle (UAV) systems. Continue development of pervasive, hydrocarbon pressure gained propulsion fueled technologies. Continue advanced development in rotating detonation engine technologies to advance powered munitions. Initiate new engine technologies to deliver reduced takeoff length, increased range, loiter, combat maneuverability, and lower cost for attritable UAS in contested environments. ***FY 2025 Plans:*** - Starting in FY 2025, this work will be performed under PE 0603211F, Aerospace Technology Dev/Demo, Project 634921 Aircraft Propulsion Subsystems Int, Expendable/Autonomous Vehicle Engine Capability effort. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 decreased compared to FY 2024 by $13.961 million. Funding decreased due to transfer of Missile/Remotely Piloted Aircraft Engine Performance effort to PE 0603211F, Aerospace Technology Dev/Demo, Project 634921 Aircraft Propulsion Subsystems Int, Expendable/Autonomous Vehicle Engine Capability effort.			
Title: Adaptive Turbine Engine Technologies ***Description:*** Design, fabricate, and demonstrate performance, durability, and operability technologies to mature adaptive turbine engine technologies. ***FY 2024 Plans:*** Not Applicable ***FY 2025 Plans:*** Not Applicable ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Not Applicable	3.965	0.000	0.000
Title: Core Engine Technologies ***Description:*** Design, fabricate, and demonstrate performance predictions in core engines, using innovative engine cycles and advanced materials for turbofan and for turbojet engines. ***FY 2024 Plans:***	7.582	1.972	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 3	**R-1 Program Element (Number/Name)** PE 0603216F / *Aerospace Propulsion and Power Technology*	**Project (Number/Name)** 634921 / *Aircraft Propulsion Subsystems Int*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Continue core tests for medium scale engines maturing key technologies. Continue risk reduction component tests for medium-scale engine advanced fan and core. Continue advanced propulsion air frame integration experiments to enable embedded propulsion systems. ***FY 2025 Plans:*** - Starting in FY 2025, this work will be performed under PE 0603211F, Aerospace Technology Dev/Demo, Project 634921 Aircraft Propulsion Subsystems Int, Core Engine Technologies effort. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 decreased compared to FY 2024 by $1.972 million. Funding decreased due to transfer of Core Engine Technologies effort to PE 0603211F, Aerospace Technology Dev/Demo, Project 634921 Aircraft Propulsion Subsystems Int, Core Engine Technologies effort.			
Title: High Pressure Ratio Core Engine Technologies ***Description:*** Design, fabricate, and demonstrate high overall pressure ratio engine cores to provide increased durability and affordability with lower fuel consumption for turbofan and for turboshaft engines. ***FY 2024 Plans:*** Complete assembly of advanced concept additive manufacturing heat exchanger for small core engines. Complete fabrication of recuperator for demonstration of increased core efficiency in small core engines. Continue to work and mature medium scale core technologies. ***FY 2025 Plans:*** - Starting in FY 2025, this work will be performed under PE 0603211F, Aerospace Technology Dev/Demo, Project 634921 Aircraft Propulsion Subsystems Int, High Pressure Ratio Core Engine Technologies effort. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2025 decreased compared to FY 2024 by $1.478 million. Funding decreased due to transfer of High Pressure Ratio Core Engine Technologies effort to PE 0603211F, Aerospace Technology Dev/Demo, Project 634921 Aircraft Propulsion Subsystems Int, High Pressure Ratio Core Engine Technologies effort.	1.295	1.478	0.000
Title: Adaptive Turbine Engine Core Technologies ***Description:*** Design, fabricate, and demonstrate adaptive turbine engine cores to provide increased durability and affordability with lower fuel consumption for turbofan and for turboshaft engines. ***FY 2024 Plans:***	0.131	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 3	**R-1 Program Element (Number/Name)** PE 0603216F / *Aerospace Propulsion and Power Technology*	**Project (Number/Name)** 634921 / *Aircraft Propulsion Subsystems Int*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Not Applicable ***FY 2025 Plans:*** Not Applicable ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Not Applicable			
Accomplishments/Planned Programs Subtotals	23.800	17.411	0.000

	FY 2023	FY 2024
Congressional Add: Low spool generator capabilities ***FY 2023 Accomplishments:*** Conduct Congressionally directed efforts. This effort will be executed in Program 0603216F, Aerospace Propulsion and Power Technology.	4.634	-
Congressional Add: Program increase - turbo air cool HTPEM hydrogen fuel cell development ***FY 2023 Accomplishments:*** Conduct Congressionally directed efforts. This effort will be executed in Program 0603216F, Aerospace Propulsion and Power Technology.	11.878	-
Congressional Adds Subtotals	16.512	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force			Date: March 2024
Appropriation/Budget Activity 3600 / 3	R-1 Program Element (Number/Name) PE 0603216F / *Aerospace Propulsion and Power Technology*	Project (Number/Name) 635098 / *Advanced Aerospace Propulsion*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
635098: *Advanced Aerospace Propulsion*	-	16.792	23.266	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops and demonstrates, via ground and flight tests, the scramjet propulsion cycle to a technology readiness level appropriate for full integration with other engine cycles (including turbine and rocket-based) to provide the Air Force with transformational military capabilities. The primary focus is on the hydrocarbon-fueled, scramjet engine. Multi-cycle engines will provide the propulsion systems for possible application to support aircraft and weapon platforms. Efforts include: scramjet flow-path optimization to enable operation over the widest possible range of Mach numbers; active combustion control to assure continuous positive thrust (even during mode transition); robust flame-holding to maintain stability through flow distortions; and maximized volume-to-surface area to minimize the thermal load imposed by the high-speed engine. Thermal management plays a vital role in scramjet and combined cycle engines, including considerations for protecting low speed propulsion systems (e.g., turbine engines) during hypersonic flight.

In FY 2025, the entirety of PE 0603216F, Aerospace Propulsion and Power Technology, Project 635098 Advanced Aerospace Propulsion, is transferred to PE 0603211F, Aerospace Technology Dev/Demo, Project 634926 High Speed Systems Integ & Demo.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Scramjet Technologies	16.792	23.266	0.000
Description: Develop and demonstrate technologies for a hydrocarbon-fueled scramjet with robust operation.			
FY 2024 Plans: Continue development and integration of larger scale scramjet component technologies to enhance operability including robust operation during maneuvers and extended operating time. Continue development and demonstration of tactically-relevant, scramjet engine designs, technologies, and components including ground and flight demonstrations needed for potential follow-on acquisition program. Continue propulsion technology maturation activities for multi-mission cruiser concept to expand performance capabilities of high speed systems. Initiate integration of scramjet components into expendable hypersonic multi-mission ISR and Strike demo design.			
FY 2025 Plans: - Starting in FY 2025, this work will be performed under PE 0603211F, Aerospace Technology Dev/Demo, Project 634926 High Speed Systems Integ & Demo, Scramjet Technologies effort.			
FY 2024 to FY 2025 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 3	**R-1 Program Element (Number/Name)** PE 0603216F / *Aerospace Propulsion and Power Technology*	**Project (Number/Name)** 635098 / *Advanced Aerospace Propulsion*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025 decreased compared to FY 2024 by $23.266 million. $12.109 million of the decrease is due to the transfer of Scramjet Technologies effort to PE 0603211F, Aerospace Technology Dev/Demo, 634926 High Speed Systems Integ & Demo, Scramjet Technologies effort. $11.157 million of the decrease is due to re-prioritization to meet the nation's future security needs.			
Accomplishments/Planned Programs Subtotals	16.792	23.266	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.