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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force **Date:** March 2024

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604706F / <i>Life Support Systems</i>
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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	-	32.820	39.301	25.502	0.000	25.502	26.387	30.080	31.169	31.785	Continuing	Continuing
65412A: <i>Life Support Systems</i>	-	32.820	39.301	25.502	0.000	25.502	26.387	30.080	31.169	31.785	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program develops aircrew flight equipment and other combat support equipment required for safe effective execution. Air Force acquisition teams lead the upgrade and fielding of new equipment and systems by assessing deficiencies in existing equipment, identifying and assessing existing products or developing new technology, and conducting required Safe-to-Fly tests, certifications, and studies. Program efforts include, but are not limited to, the following projects: directed energy protective equipment; flight helmets and visors; oxygen breathing systems for aircrew; radios and locator beacons; support equipment; nuclear flash blindness protection; night vision devices; noise reduction devices; all types of flight suits and ensembles to protect aircrew against environmental threats; anti-gravity (anti-G) suits; flame resistant, retardant and blast/ballistic protective gear; aircraft seating; impact protection equipment; flotation devices; parachutes; ejection systems; post-ejection survival systems; physiological monitoring devices and other aircrew, life support, and ground crew systems required by the warfighter.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY23 1.44M was expended for civilian pay expenses in this program element, and in FY24 1.6M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

B. Program Change Summary (\$ in Millions)	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025 Base</u>	<u>FY 2025 OCO</u>	<u>FY 2025 Total</u>
Previous President's Budget	50.042	39.301	25.457	0.000	25.457
Current President's Budget	32.820	39.301	25.502	0.000	25.502
Total Adjustments	-17.222	0.000	0.045	0.000	0.045
• 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	-15.664	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	-1.558	0.000	0.045	0.000	0.045

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

Project: 65412A: *Life Support Systems*

Congressional Add: *Physiological Monitoring*

Congressional Add Subtotals for Project: 65412A

Congressional Add Totals for all Projects

	FY 2023	FY 2024
	5.000	-
	5.000	-
	5.000	-

Change Summary Explanation

FY23 adjustments include -15.5664M on FY23-40PA; below threshold reprogrammings for AFMETCAL and JCREW and Small Business Innovative Research (SBIR) reduction of -1.558. FY25 adjustment for inflation rate increase.

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

	FY 2023	FY 2024	FY 2025
Title: Aircrew Performance Studies/Technology Projects and Minor Development Efforts	10.486	16.347	14.602
Description: Air Force Life Cycle Management Center's Aircrew Performance Branch is the single USAF focal point for Aircrew Flight Equipment (AFE) Safe-to-Fly (STF) testing certification, addressing Safety Investigation Board (SIB) recommendations, along with studies and analysis. Aircrew Laser Eye Protection - Technical Insertion (ALEP-TI), Next Generation Fixed Wing Helmet (NGFWH), BA-X Low Profile Parachute (LPP) and Nuclear Flash Blindness Goggles (NFBG) are currently the active programs within Life Support Systems (LSS). In addition, funding addresses real-time capability gaps identified by the warfighter which may be satisfied by testing and qualifying commercial-off-the-shelf (COTS) products and/or performing minor development efforts totaling less than \$10M per year. Previous successful efforts may evolve into enduring capabilities as other users and MAJCOMs seek to incorporate these STF assets into their inventory. Funds may be used to address associated emerging aircrew, ground crew, and egress requirements, and for program management activities.			
FY 2024 Plans: Continue to perform STF testing and certification of COTS products. Address SIB recommendations. Continue the development/test efforts of aircrew laser eye protection - technical insertion (ALEP-TI) radio upgrades, next generation fixed wing helmet, next generation nuclear flash blindness technology, and improvement of parachute/flotation devices.			
FY 2025 Plans: Continue to perform STF testing and certification of COTS products. Address SIB recommendations. Continue the development/test efforts of aircrew laser eye protection - technical insertion (ALEP-TI) radio upgrades, next generation fixed wing helmet, next generation nuclear flash blindness technology, and improvement of parachute/flotation devices.			
FY 2024 to FY 2025 Increase/Decrease Statement:			

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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)</i>		R-1 Program Element (Number/Name) PE 0604706F / <i>Life Support Systems</i>		
C. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
Funding decrease in RDT&E due to some programs moving towards production under Aircrew Performance Portfolio such as NGFWH.				
<p>Title: Next Generation Ejection Seat</p> <p>Description: This effort includes the qualification, procurement, fielding and sustainment of an upgraded ejection seat escape system for ACES II-equipped aircraft. The new ejection seat escape system safely accommodates greater variation in aircrew minimum and maximum weights at minimum aircrew sitting height of 31 inches, including 59% of the female pilot population, and the use of Helmet Mounted Displays. It reduces the risk of injuries to the arms and legs (especially due to limb flail), neck, and spinal column throughout all ejection phases.</p> <p>FY 2024 Plans: Complete initial platform (F-15) delta qualification sled testing. Award F-16 production readiness delivery order.</p> <p>FY 2025 Plans: Complete F-16 qualification testing. Award F-22 production readiness delivery order.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease in RDT&E due to NGES moving towards production</p>		12.754	22.100	10.000
<p>Title: Female Airmen Equipment</p> <p>Description: Female Airman Fitment efforts develop and sustain Organizational Clothing and Individual Equipment (OCIE) & Personal Protective Equipment (PPE) for female Airmen to enhance mission performance while improving safety and survival. Outreach with other AF organizations and sister services ensures that requirements are collected to vector current and future programs. Anthropometric data collection ensures that these programs produce the OCIE and PPE that will allow women to perform their best in the missions they are assigned. OCIE and PPE for female aircrew includes, but is not limited to, the development and refinement of flight suits, bladder relief systems, helmets, ejection seats, G-suits, aircrew body armor, oxygen masks, and feedback mechanisms.</p> <p>FY 2024 Plans: Continue testing and development of female flight equipment: This includes, the AF GearFit App, aircrew harness, and anthropometric studies. Begin testing on in-flight bladder relief systems.</p> <p>FY 2025 Plans: Continue testing and development of female flight equipment.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement:</p>		4.580	0.854	0.900

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
Increase in FY25 RDT&E to complete anthropometric testing of female flight equipment.			
Accomplishments/Planned Programs Subtotals	27.820	39.301	25.502

	FY 2023	FY 2024
Congressional Add: Physiological Monitoring	5.000	-
FY 2023 Accomplishments: Aircrew Physiological Incident Monitoring and Alerting (APIMA) Congressional Add was used to assist with requirements maturation and Concept of Operations development for the real time monitoring and alerting of pilot cardiorespiratory performance, and quality of breathing gas to assist in physiological incident prevention.		
Congressional Adds Subtotals	5.000	-

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPAF 04 Line Item 842990: <i>Items Less Than \$5 Million</i> <i>(Safety and Rescue Equipment)</i>	105.776	60.473	106.236	-	106.236	94.711	98.131	99.151	-	Continuing	Continuing

Remarks

E. Acquisition Strategy

The majority of efforts funded in this project employ a streamlined acquisition approach. Whenever practical, Government-Off-The-Shelf/Commercial-Off-The-Shelf (GOTS/COTS) items are tested and evaluated as candidates for solutions to user needs. This normally involves characterization, verification, and qualification testing to ensure GOTS/COTS equipment is properly certified and adapted for military purposes. However, acquisition strategies may be carried out at the project level for traditional Engineering and Manufacturing Development (EMD).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force **Date:** March 2024

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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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			
Congressional Add for Physiological Monitoring	MIPR	DIU : Picatinny Arsenal, NJ	-	5.000		-		-		-		-	Continuing	Continuing	-
Aircrew Performance Studies/Technology Projects/Minor Development Efforts	Various	Multiple Contractors : TBD	-	4.746		12.436		9.602		-		9.602	Continuing	Continuing	-
Next Generation Ejection Seat (NGES)	SS/CPFF	Collins Aerospace : Colorado Springs, CO	-	11.374		20.482		8.400		-		8.400	Continuing	Continuing	-
Female Flight Equipment	Various	Multiple Contractors : TBD	-	4.580		0.704		0.900		-		0.900	Continuing	Continuing	-
Subtotal			-	25.700		33.622		18.902		-		18.902	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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 Authority	TBD	AFLCMC : Wright-Patterson AFB, OH	-	1.380		1.618		1.600		-		1.600	Continuing	Continuing	-
Subtotal			-	1.380		1.618		1.600		-		1.600	Continuing	Continuing	N/A

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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			
Program Tests (NGES, ACES, NGFWH, etc.)	Various	Various : Various, NV	-	4.750		2.308		3.000		-		3.000	Continuing	Continuing	-
Subtotal			-	4.750		2.308		3.000		-		3.000	Continuing	Continuing	N/A

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Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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			
Program Management Administration (PMA)	TBD	AFLCMC : Wright-Patterson AFB, OH	-	0.990		1.753		2.000		-		2.000	Continuing	Continuing	-
Subtotal			-	0.990		1.753		2.000		-		2.000	Continuing	Continuing	N/A

Remarks
PMA Description: Program Management Support and Travel.

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	32.820	39.301	25.502	-	25.502	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Air Force **Date:** March 2024

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FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
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>Life Support Systems RDTE Efforts</i>																												
Aircrew Performance Aircrew Laser Eye Protection - Technical Insertion (ALEP-TI)																												
Aircrew Performance/Female Equipment																												
Next Generation Fixed Wing Helmet																												
Next Generation Ejection Seat																												
Female Bladder Relief																												
Physiological Monitoring																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Life Support Systems RDTE Efforts</i>				
Aircrew Performance Aircrew Laser Eye Protection - Technical Insertion (ALEP-TI)	1	2023	3	2028
Aircrew Performance/Female Equipment	1	2023	4	2025
Next Generation Fixed Wing Helmet	1	2023	4	2024
Next Generation Ejection Seat	1	2023	4	2027
Female Bladder Relief	1	2023	4	2028
Physiological Monitoring	1	2023	4	2023