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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 0202834F / <i>Vehicles and Support Equipment - General</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	-	0.000	5.889	14.483	0.000	14.483	13.878	11.477	11.459	11.713	Continuing	Continuing
672800: <i>AVIATION SUPPORT EQUIPMENT MODERNIZATION</i>	-	0.000	5.889	14.483	0.000	14.483	13.878	11.477	11.459	11.713	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FY22 represented the first year of funding for PEC 0202834F

A. Mission Description and Budget Item Justification

Aviation Support Equipment Modernization provides funding for the modernization of organizational and intermediate level support equipment for out-of-production and emerging aircraft, munitions and external stowage to maximize commonality of equipment, improve aircraft readiness/availability and to reduce life cycle sustainment costs. These items, common (used on more than one weapon system) and peculiar (unique to one weapon system), directly support aircraft maintenance, servicing, and sortie generation requirements.

To support aircraft generation requirements, support equipment may be studied, reviewed, modified and/or re-developed in order to maintain operational readiness. Examples of equipment under review and/or modernization includes, but not limited to, power generation, heating, ventilation, and air conditioning (HVAC), munition trailers/accessories, munition lifts/accessories, tow vehicles, munition test/maintenance stands, hydraulic equipment, and engine test stands. Any identified capability gaps may result in the design of new system.

This program element also includes program administrative cost for the Support Equipment and Vehicles program office and funds the cost of studies and research to support the aviation support equipment fleet.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver Aviation Support Modernization. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605832F, 0605833F, 0605898F, 0606398F. In 2021 \$0.000M was expended, and in 2022 \$0.000M is forecast for civilian pay expenses.

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.

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B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	5.889	0.000	0.000	0.000
Current President's Budget	0.000	5.889	14.483	0.000	14.483
Total Adjustments	0.000	0.000	14.483	0.000	14.483
• 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	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	14.483	0.000	14.483

Change Summary Explanation

FY22 represented the first year of funding in 0202834F for 3600 Appropriations. The FY22 President's Budget submittal did not reflect FY23 through FY26 funding. Therefore, an explanation of the change between the two budget positions for FY23 cannot be made in a relevant manner.

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Powered AGE Systems Modernization	0.000	1.805	3.664	0.000	3.664
Description: Ensures powered aerospace ground equipment (AGE) remains available and suitable to meet the requirements of 5th generation aircraft and force employment/basing strategies while providing reduced lifecycle sustainment costs, reduce operational footprint in support of agile combat operations, and providing improved user safety by reducing system emissions and noise. Powered AGE includes hydraulic, generators, lighting, heating/air conditioning, compressors/bleed-air, aerial stores lift trucks and other electrically driven systems used in and around the flight line for the generation and maintenance of aircraft.					
FY 2022 Plans: Efforts include the study, research, development, and operational feasibility testing of emerging technologies/ systems to provide reliable clean power such as, but not limited to, hybrid, fuel cell, power grid, and battery systems. One or more contracts may be awarded to support efforts such as the design and test of a new large aircraft generator system, battery "powerhead" systems to reduce diesel consumption and replace aging/unsupportable fleet, as well a combined aircraft power/flight line lighting system to support agile basing applications for remotely piloted aircraft. Small business innovative research (SBIR) contract may be awarded					

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C. Accomplishments/Planned Programs (\$ in Millions)					
to mature technology. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.					
N/A					
FY 2023 Base Plans: Efforts include the continued study, research, development, and operational feasibility testing of emerging technologies/systems to provide reliable clean power such as, but not limited to, hybrid, fuel cell, power grid, and battery systems. One or more contracts may be awarded to support efforts such as the design and test of a new large aircraft generator system, battery "powerhead" systems to reduce diesel consumption and replace aging/unsupportable fleet, as well a combined aircraft power/flight line lighting system to support agile basing applications for remotely piloted aircraft. Small business innovative research (SBIR) contract may be awarded to mature technology. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: FY 2022 increase to FY 2023 is due to standard inflation and additional funds to support Agile Combat Employment (ACE) support equipment requirements.					
Title: Munitions Materiel Handling Equipment (MMHE) Modernization					
Description: Ensures aerial lift trucks (jammers) and munitions trailers continue to safely meet lift & carry requirements as well as fill capability gaps resulting from new/emerging weapons and aircraft stowage, and new force employment/ basing strategies. RDT&E supports emerging opportunities, such as but not limited to, development of semi-autonomous loading systems, alternative electrical power/drive systems and exploring & implementing a Family-of-Jammers concept to address low observable aircraft loading challenges, agile operations in contested environment, and heavy-weight lift capabilities resulting from emerging weapons. Equipment may be studied, reviewed, modified and/or re-developed in order to maintain operational readiness					
FY 2022 Plans: Efforts include the study, research, development, and operational feasibility testing of emerging technologies/ systems to ensure MMHE equipment continue to meet current and future requirements. One or more contracts may be awarded to develop a Family-of-Jammer(s) to meet AF lift requirements across all weight classes and/					
	0.000	2.894	7.079	0.000	7.079

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
<p>or development of a semi-autonomous/autonomous loading system to improve user safety and generation timelines. Small business innovative research (SBIR) contract may be awarded to mature technology. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.</p> <p>FY 2023 Base Plans: Efforts include the continued study, research, development, and operational feasibility testing of emerging technologies/systems to ensure MMHE equipment continue to meet current and future requirements. One or more contracts may be awarded to develop a Family-of-Jammer(s) to meet AF lift requirements across all weight classes and/or development of a semi-autonomous/autonomous loading system to improve user safety and generation timelines. Small business innovative research (SBIR) contract may be awarded to mature technology. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.</p> <p>FY 2023 OCO Plans: N/A</p> <p>FY 2022 to FY 2023 Increase/Decrease Statement: FY 2022 increase to FY 2023 is due to standard inflation and additional funds to support Agile Combat Employment (ACE) support equipment requirements.</p>					
<p>Title: Tow Systems Modernization</p> <p>Description: New Common Tow Systems Modernization across the aircraft fleet. RDT&E efforts support development, testing, and producibility of Tow Bar and Tow Systems.</p> <p>FY 2022 Plans: To support mission generation Tow Systems Modernization requirements, support equipment may be studied, reviewed, modified and/or re-developed in order to maintain operational readiness. Examples of equipment under review include, but not limited to development of a Family-of-Tow Systems, "universal tow bar", aircraft positioners, emerging load limits, replace legacy (1955) tow systems, increase AGILE operations, reduction of deployment footprint and to reduce human and aircraft safety mishaps. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.</p> <p>FY 2023 Base Plans:</p>	0.000	1.190	3.740	0.000	3.740

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

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Continuing to support mission generation Tow Systems Modernization requirements, support equipment may be studied, reviewed, modified and/or re-developed in order to maintain operational readiness. Examples of equipment under review include, but not limited to development of a Family-of-Tow Systems, "universal tow bar", aircraft positioners, emerging load limits, replace legacy (1955) tow systems, increase AGILE operations, reduction of deployment footprint and to reduce human and aircraft safety mishaps. Budget includes funds for Program Support Costs, A&AS, travel and other equipment required to execute program activities as well as develop Air Force-wide system requirements.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement: FY 2022 increase to FY 2023 is due to standard inflation and additional funds to support Agile Combat Employment (ACE) support equipment requirements.					
Accomplishments/Planned Programs Subtotals	0.000	5.889	14.483	0.000	14.483

D. 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</u>	<u>Total Cost</u>
• APAF 07 000071: <i>Aircraft Replacement Support Equip</i>	-	-	161.513	-	161.513	-	-	-	-	-	Continuing Continuing

Remarks
The Support Equipment and Vehicles program office is responsible for developing, acquiring and sustaining common aircraft generation support equipment for the United States Air Force (USAF).

E. Acquisition Strategy

The acquisition strategy for the Munitions Materiel Handling Equipment (MMHE) Modernization project is expected to be open competition and may award to multiple vendors.

The acquisition strategy for the Powered Aerospace Ground Equipment (AGE) Modernization project is expected to be open competition and may award to multiple vendors.

The acquisition strategy for Tow Systems Modernization project is expected to be open competition.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 7				PE 0202834F / Vehicles and Support Equipment - General				672800 / AVIATION SUPPORT EQUIPMENT MODERNIZATION							
Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
MMHE Contract	C/TBD	Not specified. : TBD	-	-		2.164	Mar 2022	7.019	Mar 2023	-		7.019	Continuing	Continuing	-
Powered AGE Contract	C/TBD	Not specified. : TBD	-	-		1.385	Feb 2022	3.255	Feb 2023	-		3.255	Continuing	Continuing	-
Tow Systems Contract	C/TBD	Not specified. : TBD	-	-		1.080	Feb 2022	2.949	Feb 2023	-		2.949	Continuing	Continuing	-
Subtotal			-	-		4.629		13.223		-		13.223	Continuing	Continuing	N/A
Support (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Contractor Support	PO	Not specified. : TBD	-	-		1.200	Mar 2022	1.200	Mar 2023	-		1.200	Continuing	Continuing	-
Subtotal			-	-		1.200		1.200		-		1.200	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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
Program Office Management/Government Services	TBD	Not specified. : TBD	-	-		0.060	Feb 2022	0.060	Feb 2023	-		0.060	Continuing	Continuing	-
Subtotal			-	-		0.060		0.060		-		0.060	Continuing	Continuing	N/A
Project Cost Totals			-	-		5.889		14.483		-		14.483	Continuing	Continuing	N/A
Remarks															

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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 0202834F / <i>Vehicles and Support Equipment - General</i>	Project (Number/Name) 672800 / AVIATION SUPPORT EQUIPMENT MODERNIZATION

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>Aviation Support Equipment Mod</i>	
Powered AGE Development	[REDACTED]
MMHE Development	[REDACTED]
Tow Systems Development	[REDACTED]

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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 0202834F / <i>Vehicles and Support Equipment - General</i>	Project (Number/Name) 672800 / AVIATION SUPPORT EQUIPMENT MODERNIZATION

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Aviation Support Equipment Mod</i>				
Powered AGE Development	3	2022	3	2025
MMHE Development	3	2022	3	2026
Tow Systems Development	2	2022	2	2024