Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Army

DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

2040: Research, Development, Test & Evaluation, Army

PE 0603801A: Aviation - Adv Dev

BA 4: Advanced Component Development & Prototypes (ACD&P)

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	8.058	7.218	8.602	-	8.602	8.426	8.296	7.717	7.880	Continuing	Continuing
B32: ADV MAINT CONCEPTS/EQ	8.058	7.218	8.602	-	8.602	8.426	8.296	7.717	7.880	Continuing	Continuing

Note

Not applicable for this item

A. Mission Description and Budget Item Justification

This PE provides advanced development aviation support of tactical programs associated with air mobility, advanced maintenance concepts and equipment, and Aircrew Integrated Systems (ACIS). This program demonstrates the feasibility and maturity of new technology and gains understanding in order to evaluate utility of this technology to expedite delivery of new capabilities for Army Aviation rotary wing assets. Additionally, the Aviation Ground Support Equipment (AGSE) assets enhance the functionality of current and future aircraft by improving the effectiveness of maintenance and servicing operations through validating new maintenance concepts to improve man and machine interfaces, improve aircraft maintenance processes, reduce Operation and Support (O&S) cost and insert diagnostics technologies to replace obsolete and unsupportable equipment.

B. Program Change Summary (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	8.355	7.107	8.510	-	8.510
Current President's Budget	8.058	7.218	8.602	-	8.602
Total Adjustments	-0.297	0.111	0.092	-	0.092
 Congressional General Reductions 	-	-			
 Congressional Directed Reductions 	-	-			
 Congressional Rescissions 	_	-			
 Congressional Adds 	_	-			
 Congressional Directed Transfers 	_	-			
 Reprogrammings 	_	0.111			
SBIR/STTR Transfer	-	-			
 Adjustments to Budget Years 	-	-	0.092	-	0.092
Other Adjustments 1	-0.297	-	-	-	-

Exhibit R-2A, RDT&E Project Just	ification: PE	3 2013 Army	,						DATE: Febr	ruary 2012	
APPROPRIATION/BUDGET ACTIV	'ITY			R-1 ITEM N	OMENCLA	ΓURE		PROJECT			
2040: Research, Development, Test				PE 060380	1A: Aviation	- Adv Dev		B32: <i>ADV N</i>	MAINT CON	CEPTS/EQ	
BA 4: Advanced Component Develo	pment & Pro	ototypes (AC	D&P)								
COST (\$ in Millions)			FY 2013	FY 2013	FY 2013					Cost To	
COST (\$ III WIIIIOTIS)	FY 2011	FY 2012	Base	oco	Total	FY 2014	FY 2015	FY 2016	FY 2017	Complete	Total Cost
B32: ADV MAINT CONCEPTS/EQ	8.058	7.218	8.602	-	8.602	8.426	8.296	7.717	7.880	Continuing	Continuing
Quantity of RDT&E Articles											

Note

Not applicable for this item.

A. Mission Description and Budget Item Justification

This Project provides advanced development aviation support of programs that include advanced maintenance concepts and equipment. The FY 2013 budget request funds Aviation Advanced Development which supports Aviation Ground Support Equipment development prototypes that will enhance the functionality of current and future aircraft by improving the effectiveness of maintenance and servicing operations through validating new maintenance concepts to improve man and machine interfaces, improve aircraft maintenance processes, reduce Operation and Support costs, and insert diagnostics technologies to replace obsolete and unsupportable equipment. This program provides for development of rapid battle repair procedures, tools development to speed the return of aircraft to a full mission status, and development of new equipment for aerial recovery of damaged aircraft. Included in this program are: diagnostics/prognostic monitoring systems, Aviation Ground Power Unit (AGPU) equipment familiarization software, redesign and incorporation of AGPU modularity capabilities, Aviation Light Utility Mobile Maintenance Cart (ALUMMC), Aviation Sets, Kits, Outfits and Tools (A-SKOT) (Common Aviation Tool System (CATS); Aviation B1/B4 Maintenance Stands (B1-B4)), Digital Aircraft Weighing Scales II (DAWS II), Hand Held Fire Extinguisher (HHFE), Non-Destructive Test Equipment System (NDTE), Battle Damage Assessment and Repair (BDAR) Block II, Flexible Engine Diagnostic System (FEDS), Aviation Lifting Device, and development support for tools needed to provide maintenance support to modernized/ future force aircraft.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Title: Aviation Ground Power Unit (AGPU)	0.500	-	4.191
Articles:	0		
Description: The AGPU provides the capability to meet Army helicopter servicing requirements into the next decade by providing a modular, diagnostic/prognostic monitoring system with external hydraulic, pneumatic, and AC/DC electrical power to all Modernized Force Aircraft.			
FY 2011 Accomplishments: Completed analysis and testing of phase I hydraulic module re-design.			
FY 2013 Plans: Develop Operational Test Plans, Test and Evaluation Master Plans and Safety Plans, purchase AGPU prototypes, complete environmental and performance testing and conduct down select.			
Title: Aviation Light Utility Mobile Maintenance Cart (ALUMMC)	-	1.487	0.546

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army			DATE: Fe	bruary 2012	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 ITEM NOMENCLATURE PE 0603801A: Aviation - Adv Dev	PROJEC B32: AD\	T / MAINT CON	NCEPTS/EQ	
B. Accomplishments/Planned Programs (\$ in Millions, Article Qu	antities in Each <u>)</u>		FY 2011	FY 2012	FY 2013
Description: Aviation Light Utility Mobile Maintenance Cart will enhand intensive manpower and logistics burden imposed on Army Aviation U		Articles: ucing an		0	
FY 2012 Plans: Develop operational test plans, select site, purchase prototypes, com FY 2013 Plans:	plete testing and down select ALUMMC.				
Finalization of product evaluation and operational test plans. Title: Aviation B1/B4 Maintenance Stands		Articles:	-	0.525 0	-
Description: Aviation Maintenance Stands are a component of Aviati a stable working platform for Army rotorcraft maintenance activities as maintainers.					
FY 2012 Plans: Develop testing and evaluation plans to modernize maintenance platf and selection of product.	forms, purchase product samples and complete e	valuation			
Title: Battle Damage Assessment and Repair (BDAR) Block II		Articles:	0.026 0	0.505 0	-
Description: BDAR Block II provides damage assessment and rapid	repair to aviation aircraft.				
FY 2011 Accomplishments: Completed phase one of the BDAR Block II Development for the com	ponent kit.				
FY 2012 Plans: Complete phase two for the advanced composite demonstration developed and evaluation and select vendor for production.	elopment, purchase sample representatives, cond	uct testing			
Title: Common Aviation Tool System (CATS)		Articles:	0.475 0	-	-
Description: CATS is a component of A-SKOT and consists of individual standard tools, foam shadowed drawers and a component listing with					

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army			DATE: Fel	oruary 2012	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 ITEM NOMENCLATURE PE 0603801A: Aviation - Adv Dev	PROJEC B32: AD	T / MAINT CON	ICEPTS/EQ	
B. Accomplishments/Planned Programs (\$ in Millions, Article Qua	ntities in Each)		FY 2011	FY 2012	FY 2013
foreign object damage to aircraft. CATS provides standardized tools, ki flexibility and mobility requirements for repair of rotary wing aircraft during		у,			
FY 2011 Accomplishments: Develop test plans and purchase samples of tool kit containers, perform for purchase of approved container.	m testing and evaluation on all samples and select	vendor			
Title: Digital Aircraft Weighing Scales (DAWS) II			-	-	0.600
Description: DAWS II is an electronic/digital weighing scale. It is used and produces a computerized DD Form 365 outlining results.	d to perform weight and balance without leveling th	e aircraft			
FY 2013 Plans: Conduct research into the availability of modern technology and assess	s the need for system modernization procurement.				
Title: Flexible Engine Diagnostics System (FEDS)		Articles:	2.450	1.588	-
Description: FEDS is a Turbo-Shaft Engine Test Stand that verifies fligmaintenance. This test stand supports the CH-47, AH-64 and UH-60 at					
FY 2011 Accomplishments: Performed reliability analysis, prototype build, testing, software develop deficiencies identified.	oment and modernization of the FEDS and correcte	ed all			
FY 2012 Plans: Complete the FEDS for the prototype development and integrate network adaption of a Common Access Card.	orking capabilities of FEDS devices through the de	sign and			
Title: Hand Held Fire Extinguisher (HHFE)		Articles:	1.482	0.717	-
Description: The HHFE is being reviewed to find a replacement for the Wing aircraft.	e Halon 1301 agent currently fielded on Aviation R			U	
FY 2011 Accomplishments:					

PE 0603801A: Aviation - Adv Dev Army UNCLASSIFIED
Page 4 of 12

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army			DATE: Fe	bruary 2012	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 4: Advanced Component Development & Prototypes (ACD&P)	PROJECT B32: ADV		NCEPTS/EQ		
B. Accomplishments/Planned Programs (\$ in Millions, Article Qu	uantities in Each)		FY 2011	FY 2012	FY 2013
Completed various testing of the FM-200 mixed with sodium bicarbor the Hand Held Fire Extinguisher, completed the technical data packa replacement for the HALON 1301 extinguisher.					
FY 2012 Plans: Perform testing and evaluation on the replacement HALON 1301 extinuous selected HALON 1301 extinguisher.	inguisher and complete documentation for release	e of the			
Title: Non-Destructive Test Equipment (NDTE)			-	-	0.92
Description: NDTE provides Army Aviation Maintenance units with a and structures without complete disassembly or removal of compone		nponents			
FY 2013 Plans: Begin research and development of Non-Destructive Test Equipment for modernization and technology advancements.	t (eddy current, ultrasonic, harmonic bond, and ra	diography)			
Title: Shop Equipment Contact Maintenance (SECM)			1.087	-	-
Description: SECM provides the combat maintainer a contact maintainer of aircraft.	enance vehicle with containerized tools/spares/m	Articles: odules for	0		
FY 2011 Accomplishments: Completed development and testing of an export power system that we have a support power system.	will meet Phase II power requirements.				
Title: Unit Maintenance Aerial Recovery Kit (UMARK)		Articles:	1.209 0	1.199 0	1.10
Description: UMARK provides Aviation Support Company and Aviat for transport crash-damaged non-flyable modernized aircraft or aircraft		quickly rig			
FY 2011 Accomplishments: Developed test plans to verify rigging procedures and began ground simulations for the recovery of crash damaged aircraft.	development and flight test as a result of modelin	g and			
FY 2012 Plans: Continue ground development and flight test as a result of modeling a	and simulations for the recovery of crash damage	d aircraft.			
FY 2013 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army

APPROPRIATION/BUDGET ACTIVITY
2040: Research, Development, Test & Evaluation, Army
BA 4: Advanced Component Development & Prototypes (ACD&P)

DATE: February 2012

R-1 ITEM NOMENCLATURE
PE 0603801A: Aviation - Adv Dev
B32: ADV MAINT CONCEPTS/EQ

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Complete ground and flight testing verification.			
Title: Management Support Services Articles:	0.250 0	0.355 0	0.400
Description: Management Support Services in Support of the Aviation Ground Support Equipment Product Management Office.			
FY 2011 Accomplishments: Management Support Services			
FY 2012 Plans: Management Support Services			
FY 2013 Plans: Management Support Services			
Title: RDTE Project Test Support Articles:	0.280 0	0.360 0	0.430
Description: RDTE Project Test Support for the Aviation Ground Support Equipment Product Management Office.			
FY 2011 Accomplishments: RDTE Project Test Support			
FY 2012 Plans: RDTE Project Test Support			
FY 2013 Plans: RDTE Project Test Support			
Title: Technical Engineering Services Articles:	0.299 0	0.482 0	0.410
Description: Technical Engineering Services in support of Aviation Ground Support Equipment Product Management Office.			
FY 2011 Accomplishments: Technical Engineering Services			
FY 2012 Plans:			

PE 0603801A: Aviation - Adv Dev Army UNCLASSIFIED
Page 6 of 12

Exhibit R-2A, RDT&E Project Justification: PB 2013 Army

DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY R-1 ITEM NOMENCLATURE PROJECT

2040: Research, Development, Test & Evaluation, Army PE 0603801A: Aviation - Adv Dev B32: ADV MAINT CONCEPTS/EQ

BA 4: Advanced Component Development & Prototypes (ACD&P)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2011	FY 2012	FY 2013
Technical Engineering Services			
FY 2013 Plans:			
Technical Engineering Services			
Accomplishments/Planned Programs Subtotals	8.058	7.218	8.602

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

			FY 2013	FY 2013	FY 2013					Cost To	
<u>Line Item</u>	FY 2011	FY 2012	Base	OCO	<u>Total</u>	FY 2014	FY 2015	FY 2016	FY 2017	Complete	Total Cost
 Aviation Ground Support 	141.324	114.517	82.511		82.511		94.445	166.684	131.088	Continuing	Continuing

Equipment: Aviation Ground Support Equipment, SSN AZ3520

D. Acquisition Strategy

This project is an aggregate of advanced maintenance concepts related projects. While the detailed acquisition strategy varies from project to project, the general strategy for each individual project is to complete the development effort through Government test (developmental and operational). Program documentation for milestone decision is prepared, as appropriate, concurrently with the development effort.

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

PE 0603801A: Aviation - Adv Dev

Army

Page 7 of 12

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army

APPROPRIATION/BUDGET ACTIVITY

2040: Research, Development, Test & Evaluation, Army

BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE

PE 0603801A: Aviation - Adv Dev

PROJECT

B32: ADV MAINT CONCEPTS/EQ

DATE: February 2012

Management Services	(\$ in Millio	ons)		FY 2	012	FY 2 Ba	2013 se	FY 2		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Support Services	Various	PM AGSE:RSA, AL	0.629	0.355		0.400		-		0.400	Continuing	Continuing	Continuing
		Subtotal	0.629	0.355		0.400		-		0.400			

Remarks

None

Product Development	(\$ in Millio	ns)		FY 2	2012	FY 2 Ba			2013 CO	FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AGPU	Various	RTTC, Redstone Arsenal (RSA), AL; AMRDEC, RSA, AL; AATD, Ft. Eustis, VA; Aberdeen Test Center (ATC),:Aberdeen Proving Ground, MD	11.351	-		4.191		-		4.191	Continuing	Continuing	Continuing
ALUMMC	Various	AMRDEC, RSA, AL, AATD, Ft. Eustis, VA, ATC,:Aberdeen Proving Ground MD	-	1.487		0.546		-		0.546	0.000	2.033	0.000
B1/B4 Maintenance Stands (Aviation Sets, Kits, Outfits and Tools (A-SKOT))	Various	AMRDEC, RSA, AL; AATD, Ft., Eustis, VA., ATC,:Aberdeen Proving Ground	-	0.525		-		-		-	0.000	0.525	0.000
BDAR Block II	Various	AMRDEC, RSA, AL; AATD, Ft., Eustis, VA., ATC,:Aberdeen Proving Ground, MD	0.656	0.505		-		-		-	0.000	1.161	0.000
CATS (A-SKOT)	Various	AATD, Ft. Eustis, VA, ATC,:Aberdeen Proving Ground, MD.	0.475	-		-		-		-	0.000	0.475	0.000

PE 0603801A: Aviation - Adv Dev Army

UNCLASSIFIED
Page 8 of 12

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army

APPROPRIATION/BUDGET ACTIVITY

2040: Research, Development, Test & Evaluation, Army

BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE

PE 0603801A: Aviation - Adv Dev

PROJECT

B32: ADV MAINT CONCEPTS/EQ

DATE: February 2012

Product Development	(\$ in Millio	ns)		FY 2	012	FY 2 Bas		FY 2		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DAWS II	Various	AMRDEC, RSA, AL; AATD,:Ft. Eustis, VA,	-	-		0.600		-		0.600	Continuing	Continuing	Continuing
FEDS	Various	AMRDEC, RSA, AL; AATD, Ft. Eustis, VA; ATC,:Aberdeen Proving Ground, MD	9.005	1.588		-		1		-	0.000	10.593	0.000
HHFE	Various	AMRDEC, RSA, AL; ATC,:Aberdeen Proving Ground, MD	5.687	0.717		-		-		-	0.000	6.404	0.000
NDTE	Various	AMRDEC, RSA, AL., AATD, Ft. Eustis, VA; ATC,:Aberdeen Proving Ground, MD	0.404	-		0.925		-		0.925	Continuing	Continuing	Continuing
SECM	Various	AMRDEC, RSA, AL; AATD, Ft. Eustis, VA; ATC,:Aberdeen Proving Ground, MD	5.822	-		-		-		-	0.000	5.822	0.000
UMARK	Various	AMRDEC, RSA, AL; AATD, Ft. Eustis, VA; ATC,:Aberdeen Proving Ground, MD	3.820	1.199		1.100		-		1.100	0.000	6.119	0.000
		Subtotal	37.220	6.021		7.362		-		7.362			

Support (\$ in Millions)		FY 2012			2013 se		2013 CO	FY 2013 Total					
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Engineering Services	Various	AATD,:Ft. Eustis, VA	6.776	0.482		0.410		-		0.410	Continuing	Continuing	Continuing
	•	Subtotal	6.776	0.482		0.410		-		0.410			

Remarks None

PE 0603801A: Aviation - Adv Dev

Army

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Army

APPROPRIATION/BUDGET ACTIVITY

2040: Research, Development, Test & Evaluation, Army

BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE

PE 0603801A: Aviation - Adv Dev

PROJECT

B32: ADV MAINT CONCEPTS/EQ

DATE: February 2012

Test and Evaluation (\$ in Millions)			FY 2	2012	FY 2 Ba	2013 se		2013 CO	FY 2013 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
RDTE Project Test Support	MIPR	ATC,:Aberdeen Proving Ground, MD	1.234	0.360		0.430		-		0.430	Continuing	Continuing	Continuing
	•	Subtotal	1.234	0.360		0.430		-		0.430			

Remarks

None

	Total Prior Years Cost	FY 2	2012	FY 2 Ba	FY 2	2013 CO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	45.859	7.218		8.602	-		8.602			

Remarks

PE 0603801A: Aviation - Adv Dev Army

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Army

DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY

2040: Research, Development, Test & Evaluation, Army

BA 4: Advanced Component Development & Prototypes (ACD&P)

R-1 ITEM NOMENCLATURE PROJECT

PE 0603801A: Aviation - Adv Dev B32: ADV MAINT CONCEPTS/EQ

	FY 2011				FY	201	2		FY 2013			FY 2014			FY 2015				FY 2016					FY 2017				
	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
AGPU							,																		·	,		
Aviation Light Utility Mobile Maintenance Cart																												-
Aviation B1/B4 Maintenance Stands																												_
Comman Aviation Tool System (CATS) - (Aviation Sets, Kits, Outfits and Tools)																												
Digital Aircraft Weighing Scales II																												
Non-Destructive Test Equipment																												

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Army

DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY R-1 ITEM NOMENCLATURE PROJECT

2040: Research, Development, Test & Evaluation, Army PE 0603801A: Aviation - Adv Dev B32: ADV MAINT CONCEPTS/EQ

BA 4: Advanced Component Development & Prototypes (ACD&P)

Schedule Details

	St	art	End			
Events	Quarter	Year	Quarter	Year		
AGPU	2	2013	4	2015		
Aviation Light Utility Mobile Maintenance Cart	2	2012	4	2013		
Aviation B1/B4 Maintenance Stands	2	2012	4	2012		
Comman Aviation Tool System (CATS) - (Aviation Sets, Kits, Outfits and Tools)	2	2012	4	2012		
Digital Aircraft Weighing Scales II	2	2013	4	2015		
Non-Destructive Test Equipment	2	2013	4	2014		