Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force

Date: May 2017

Appropriation/Budget Activity

R-1 Program Element (Number/Name)

3600: Research, Development, Test & Evaluation, Air Force I BA 7:

PE 0207268F I Aircraft Engine Component Improvement Program

Operational Systems Development

COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	104.092	109.859	109.243	0.000	109.243	111.116	113.350	115.480	117.842	Continuing	Continuing
671012: Aircraft Engine Component Improvement Program	-	73.763	78.293	76.969	0.000	76.969	78.314	79.938	81.488	83.155	Continuing	Continuing
675365: F135 Aircraft Engine Component Improvement Program	-	30.329	31.566	32.274	0.000	32.274	32.802	33.412	33.992	34.687	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines to maintain flight safety (highest priority) to correct deficiencies, improve system operational readiness (OR) and reliability & maintainability (R&M), reduce engine Life Cycle Cost (LCC), and sustain engines throughout their service life.

Changes in aircraft operational parameters caused by changing missions and tasks accelerate new engine problems; Engine CIP provides the means to develop fixes for these problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. The program starts with government acceptance of the first procurement-funded engine and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older engines operational. Engine CIP testing identifies and fixes engine-related problems ahead of operational impacts. R&M related Engine CIP efforts significantly reduce out year Operations and Maintenance (O&M) and spares costs.

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.

PE 0207268F: Aircraft Engine Component Improvement Pr...

Air Force Page 1 of 19

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force

Date: May 2017

Appropriation/Budget Activity

3600: Research, Development, Test & Evaluation, Air Force I BA 7:

Operational Systems Development

R-1 Program Element (Number/Name)

PE 0207268F I Aircraft Engine Component Improvement Program

B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	103.942	109.859	108.928	0.000	108.928
Current President's Budget	104.092	109.859	109.243	0.000	109.243
Total Adjustments	0.150	0.000	0.315	0.000	0.315
 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 	3.500	0.000			
SBIR/STTR Transfer	-3.350	0.000			
Other Adjustments	0.000	0.000	0.315	0.000	0.315

Change Summary Explanation

FY16 increase of \$3.5M for LCMC/Aircraft Engine CIP program

PE 0207268F: Aircraft Engine Component Improvement Pr... Air Force

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Exhibit R-2A, RDT&E Project Ju	Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force											
Appropriation/Budget Activity 3600 / 7						R-1 Program Element (Number/Name) PE 0207268F I Aircraft Engine Component Improvement Program Project (N 671012 I A Improvem						ent
COST (\$ in Millions)	Prior Years FY 2016 FY 2017 Base OCO Total FY 2019 FY 2020 FY 202							FY 2021	FY 2022	Cost To Complete	Total Cost	
671012: Aircraft Engine Component Improvement Program	-	73.763	78.293	76.969	0.000	76.969	78.314	79.938	81.488	83.155	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical sustaining engineering support for in-service Air Force engines to maintain flight safety (highest priority) to correct deficiencies, improve system operational readiness (OR) and reliability & maintainability (R&M), reduce engine Life Cycle Cost (LCC), and sustain engines throughout their service life.

Changes in aircraft operational parameters caused by changing missions and tasks accelerate new engine problems; Engine CIP provides the means to develop fixes for these problems. Engine CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. The program starts with government acceptance of the first procurement-funded engine and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older engines operational. Engine CIP testing identifies and fixes engine-related problems ahead of operational impacts. R&M related Engine CIP efforts significantly reduce out year Operations and Maintenance (O&M) and spares costs.

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. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018
Title: F100 Aircraft Engine Component Improvement Program	9.562	6.434	6.325
Description: The F100-220 and F100-229 Engine CIP provides critical developmental engineering support for approximately 4085 engines (including foreign military sales [FMS]) to maintain flight safety (highest priority), to address parts obsolescence, to improve system operational readiness (OR) and reliability & maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life. Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues.			
FY 2016 Accomplishments: F100-220 and F100-229: - Executed 30+ tasks. Budget addressed engine issues associated with the F-15 and F-16 aircraft Addressed engine component redesign, repair/rework procedures, engine maturation and life limit/mission analysis.			

PE 0207268F: Aircraft Engine Component Improvement Pr... Air Force Page 3 of 19

Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force			Date: N	/lay 2017		
Appropriation/Budget Activity 3600 / 7	PE 0207268F I Aircraft Engine Component	Project (Number/Name) at 671012 I Aircraft Engine Component Improvement Program				
B. Accomplishments/Planned Programs (\$ in Millions)		FY	2016	FY 2017	FY 2018	
 Validated redesigned parts and new repair procedures. Maintained engine flight safety, addressed obsolescence deficient reliability & maintainability (R&M), reduced engine life cycle costs (L Funds may be used to address emerging and short-notice Diministissues. 	LCC), and sustained engines throughout their service life.	SMS)				
FY 2017 Plans: F100-220 and F100-229: - Will execute 30+ tasks. Budget will address engine issues associated Address engine component redesign, repair/rework procedures, evalidate redesigned parts and new repair procedures Maintain engine flight safety, address obsolescence deficiencies, in maintainability (R&M), reduced engine life cycle costs (LCC), and solve - Funds may be used to address emerging and short-notice Diministissues.	ngine maturation and life limit/mission analysis. improved system operational readiness (OR) and reliability ustain engines throughout their service life.					
FY 2018 Plans: F100-220 and F100-229: - Will execute 30+ tasks. Budget will address engine issues associa - Address engine component redesign, repair/rework procedures, e - Validate redesigned parts and new repair procedures Maintain engine flight safety, address obsolescence deficiencies, i maintainability (R&M), reduced engine life cycle costs (LCC), and s - Funds may be used to address emerging and short-notice Diminis issues.	ngine maturation and life limit/mission analysis. improved system operational readiness (OR) and reliability ustain engines throughout their service life.					
Title: F110 Aircraft Engine Component Improvement Program			12.957	16.237	15.963	
Description: The F101, F110-100, F110-129, F118-100, and F118 support for approximately 2732 engines (including foreign military s address parts obsolescence, to improve system operational reading engine Life Cycle Cost (LCC), and to sustain engines throughout the short-notice Diminishing Manufacturing Sources and Material Short	ales [FMS]) to maintain flight safety (highest priority), to ess (OR) and reliability & maintainability (R&M), to reduce eir service life. Funds may be used to address emerging a					
FY 2016 Accomplishments: F101, F110-100, F110-129, F118-100, and F118-101:						

PE 0207268F: Aircraft Engine Component Improvement Pr... Air Force

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: N	1ay 2017	
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F I Aircraft Engine Component Improvement Program	Project (Number/l 671012 <i>I Aircraft E</i> <i>Improvement Prog</i>	ngine Compo	nent
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
 Executed 35+ tasks. The budget addressed engine issues associated analysis. Validated redesigned parts and new repair procedures. Maintained engine flight safety, addressed obsolescence deficien reliability & maintainability (R&M), reduced engine life cycle costs (Funds may be used to address emerging and short-notice Diministrations. 	vork procedures, engine maturation and life limit/mission acies, improved system operational readiness (OR) and LCC), and sustained engines throughout their service life.	SMS)		
FY 2017 Plans: F101, F110-100, F110-129, F118-100, and F118-101: - Will execute 35+ tasks. The budget will address engine issues as - Address safety of flight, engine component redesign, repair/rewor - Validate redesigned parts and new repair procedures Maintain engine flight safety, address obsolescence deficiencies, maintainability (R&M), reduced engine life cycle costs (LCC), and so - Funds may be used to address emerging and short-notice Diministissues.	rk procedures, engine maturation and life limit/mission analimproved system operational readiness (OR) and reliability sustain engines throughout their service life.	/ &		
FY 2018 Plans: F101, F110-100, F110-129, F118-100, and F118-101: - Will execute 35+ tasks. The budget will address engine issues as - Address safety of flight, engine component redesign, repair/rewor - Validate redesigned parts and new repair procedures Maintain engine flight safety, address obsolescence deficiencies, maintainability (R&M), reduced engine life cycle costs (LCC), and so - Funds may be used to address emerging and short-notice Diministissues.	rk procedures, engine maturation and life limit/mission analimproved system operational readiness (OR) and reliability sustain engines throughout their service life.	/ &		
Title: F119 Aircraft Engine Component Improvement Program		24.512	26.017	25.578
Description: The F119 Engine CIP provides critical developmenta maintain flight safety (highest priority), to address parts obsolescer reliability & maintainability (R&M), to reduce engine Life Cycle Cost Funds may be used to address emerging and short-notice Diminish issues.	nce, to improve system operational readiness (OR) and t (LCC), and to sustain engines throughout their service life			

PE 0207268F: Aircraft Engine Component Improvement Pr...
Air Force

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date:	May 2017	
Appropriation/Budget Activity 3600 / 7		Project (Number / 671012 / Aircraft E Improvement Prog	Engine Compo	nent
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
FY 2016 Accomplishments: F119: - Executed 25+ tasks. The budget addressed engine issues associate. Addressed engine component redesign, repair/rework procedures, e. Validated redesigned parts and new repair procedures Maintained engine flight safety, addressed obsolescence deficiencie reliability & maintainability (R&M), reduced engine life cycle costs (LC - Funds may be used to address emerging and short-notice Diminish issues.	engine maturation and life limit/mission analysis. es, improved system operational readiness (OR) and CC), and sustained engines throughout their service life.	GMS)		
FY 2017 Plans: F119: - Will execute 25+ tasks. The budget will address engine issues associated as a second point of the secon	gine maturation and life limit/mission analysis. nproved system operational readiness (OR) and reliability stain engines throughout their service life.			
FY 2018 Plans: F119: - Will execute 25+ tasks. The budget will address engine issues assotant and a second point redesign, repair/rework procedures, engine - Validate redesigned parts and new repair procedures Maintain engine flight safety, address obsolescence deficiencies, immaintainability (R&M), reduced engine life cycle costs (LCC), and sustain a sustain a second parts and short-notice Diminish issues.	gine maturation and life limit/mission analysis. nproved system operational readiness (OR) and reliability stain engines throughout their service life.			
Title: Other Aircraft Engine Component Improvement Program		26.732	29.605	29.103
Description: The Other Engines (e.g., T56, T700, T400, J85, F107, support for approximately 13000 engines (including foreign military standards parts obsolescence, to improve system operational readines	ales [FMS]) to maintain flight safety (highest priority), to			

PE 0207268F: Aircraft Engine Component Improvement Pr... Air Force

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: I	May 2017	
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F I Aircraft Engine Component Improvement Program	Project (Number/ 671012 / Aircraft E Improvement Prog	ngine Compo	onent
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
engine Life Cycle Cost (LCC), and to sustain engines throughout their short-notice Diminishing Manufacturing Sources and Material Shortage		and		
FY 2016 Accomplishments: Other Engines (e.g., T56, T700, T400, J85, APUs, F107): - Executed 15+ tasks. The budget addressed engine issues associated aircraft APUs Addressed engine component redesign, repair/rework procedures, etc. Validated redesigned parts and new repair procedures Maintained engine flight safety, addressed obsolescence deficiencies reliability & maintainability (R&M), reduced engine life cycle costs (LCC - Funds may be used to address emerging and short-notice Diminishir issues.	ngine maturation and life limit/mission analysis. s, improved system operational readiness (OR) and C), and sustained engines throughout their service life.			
FY 2017 Plans: Other Engines (e.g., T56, T700, T400, J85, APUs, F107): - Will execute 15+ tasks. The budget will address engine issues associand aircraft APUs Address engine component redesign, repair/rework procedures, engine validate redesigned parts and new repair procedures Maintain engine flight safety, address obsolescence deficiencies, improvedure improvedures (R&M), reduced engine life cycle costs (LCC), and sustant Funds may be used to address emerging and short-notice Diminishir issues.	ine maturation and life limit/mission analysis. proved system operational readiness (OR) and reliabilities ain engines throughout their service life.	ty &		
FY 2018 Plans: Other Engines (e.g., T56, T700, T400, J85, APUs, F107): - Will execute 15+ tasks. The budget will address engine issues associand aircraft APUs Address engine component redesign, repair/rework procedures, enginent validate redesigned parts and new repair procedures Maintain engine flight safety, address obsolescence deficiencies, improximation and the component redesigned parts and new repair procedures.	ine maturation and life limit/mission analysis. proved system operational readiness (OR) and reliabili			

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PE 0207268F: Aircraft Engine Component Improvement Pr... Air Force

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F I Aircraft Engine Component Improvement Program	Project (Numbe 671012 I Aircraft Improvement Pro	Engine Compo	onent
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018
- Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS)			
issues.			
Accomplishments/Planned Programs Subtotals	73.763	78.293	76.969

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

N/A

Remarks

Other APPN RELATED ACTIVITIES

(U) - PEs 0203752A and 0205633N, Army/Navy Aircraft Engine CIPs

D. Acquisition Strategy

Sole Source Indefinite Delivery/Indefinite Quantity (IDIQ) contracts to 3 Original Equipment Manufacturers (OEMs), and DoD agencies with a 5-year ordering period and 7-year delivery period. Supports multiple tasks to accomplish CIP for more than 23 engine models.

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.

PE 0207268F: Aircraft Engine Component Improvement Pr... Air Force

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force

Appropriation/Budget Activity

3600 / 7

R-1 Program Element (Number/Name)

PE 0207268F I Aircraft Engine Component Improvement Program

Project (Number/Name)

671012 l Aircraft Engine Component

Date: May 2017

Improvement Program

Product Developmen	nt (\$ in Mi	illions)		FY:	2016	FY 2	2017		2018 ise		2018 FY 2018 CO 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	Total Cost	Target Value of Contract
Aircraft Engine CIP:Develop aircraft engine improvements - F110/F101/F118	SS/CPFF	GE : Evendale, OH	-	17.180	Dec 2015	17.162	Dec 2016	16.873	Dec 2017	0.000		16.873	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-F100/F119/ TF33	SS/CPFF	Pratt & Whitney : Hartford, CT	-	36.775	Dec 2015	41.337	Dec 2016	40.606	Dec 2017	0.000		40.606	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-TF34/J85/ T700	SS/CPFF	GE : Lynn, MA	-	4.638	Dec 2015	4.272	Dec 2016	4.200	Dec 2017	0.000		4.200	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft engine improvements-T56	SS/CPFF	Rolls Royce : Indianapolis, IN	-	2.377	Dec 2015	1.120	Dec 2016	1.101	Dec 2017	0.000		1.101	Continuing	Continuing	-
Aircraft Engine CIP: Develop aircraft auxiliary power unit improvements	SS/CPFF	Honeywell : Phoenix, AZ	-	4.589	Dec 2015	4.610	Dec 2016	4.532	Dec 2017	0.000		4.532	Continuing	Continuing	-
Aircraft Engine CIP: Develop engine improvements-F107	SS/CPFF	Teledyne : Toledo, OH	-	1.856	Sep 2016	4.365	Dec 2016	4.291	Dec 2017	0.000		4.291	Continuing	Continuing	-
		Subtotal	-	67.415		72.866		71.603		0.000		71.603	-	-	-

Remarks

FY18 increases due to inflation adjustments.

Support (\$ in Millions				FY 2	2016	FY 2	2017	FY 2 Ba	2018 ise	FY 2		FY 2018 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	Total Cost	Target Value of Contract
Aircraft Engine CIP: Non- OEM CIP Tasks	Various	Various : Various	-	1.568	Oct 2015	0.220	Oct 2016	0.216	Oct 2017	0.000		0.216	Continuing	Continuing	-
		Subtotal	-	1.568		0.220		0.216		0.000		0.216	-	-	-

PE 0207268F: Aircraft Engine Component Improvement Pr... Air Force

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force

R-1 Program Element (Number/Name)

Project (Number/Name)

Appropriation/Budget Activity 3600 / 7

PE 0207268F I Aircraft Engine Component Improvement Program 671012 I Aircraft Engine Component

Date: May 2017

Improvement Program

Support (\$ in Millions)		FY	2016	FY	2017		2018 ase		2018 CO	FY 2018 Total			
Contract Method Performing Cost Category Item & Type 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

Remarks

Non-OEM CIP Tasks refer to work in support of Engine CIP.

FY18 increases due to inflation adjustments.

Test and Evaluation	(\$ in Milli	ons)		FY 2	2016	FY 2	2017	FY 2 Ba		FY 2		FY 2018 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	Total Cost	Target Value of Contract
Aircraft Engine CIP: Ground test and validate engine improvements	PO	AEDC : Arnold AFB, TN	-	1.972	Oct 2015	1.860	Oct 2016	1.860	Oct 2017	0.000		1.860	Continuing	Continuing	-
	_	Subtotal	-	1.972		1.860		1.860		0.000		1.860	-	-	-

Remarks

Fuel costs for contractor-performed T&E are included in the applicable contract.

FY18 increases due to inflation adjustments.

Management Service	es (\$ in M	illions)		FY 2	2016	FY 2	2017		2018 ise	FY 2		FY 2018 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	Total Cost	Target Value of Contract
Aircraft Engine CIP: PMA	Various	Various : Various	-	1.141	Oct 2015	1.737	Oct 2016	1.707	Oct 2017	0.000		1.707	Continuing	Continuing	-
Aircraft Engine CIP: In House Support/Misc	Various	Various : Various	-	1.667	Oct 2015	1.610	Oct 2016	1.583	Oct 2017	0.000		1.583	Continuing	Continuing	-
	*	Subtotal	-	2.808		3.347		3.290		0.000		3.290	-	-	-

Remarks

PMA Description: Program Management support, travel, and A&AS.

FY18 increases due to inflation adjustments.

PE 0207268F: Aircraft Engine Component Improvement Pr...

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2	018 Air F	orce							Date:	May 201	7	
Appropriation/Budget Activity 3600 / 7				PE 020	7268F <i>l</i>	•	umber/Name) gine Component	Project (671012 / Improver	Aircraft	Engine C	omponer	nt
	Prior Years	FY 2	2016	FY 2	2017	FY 2 Ba		2018 CO	FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	73.763		78.293		76.969	0.000		76.969	-	-	-

Remarks

FY18 increases due to inflation adjustments.

PE 0207268F: Aircraft Engine Component Improvement Pr...

Air Force

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xhibit R-4, RDT&E Schedule Profile: FY 2	018 Air F	orce																1	Date	: Ma	y 20	017		
ppropriation/Budget Activity 600 / 7						PE	020	7268	n Elen F I Air at Prog	cra	ft Èng				nt	6710	012	Ì Air	craf	er/Na t Eng ogra	gine		mpor	nent
		FY 20	16		FY 20	017		FY 2	2018		F۱	2019)		FY 2	2020			FY 2	2021			FY 20)22
	1	2 3	3 4	1	2	3 4	1	2	3 4	1	1 2	2 3	4	1	2	3	4	1	2	3	4	1	2	3 4
F-100 Engine CIP activities			,			·																		
F-110 Engine CIP Activities																								
F-119 Engine CIP Activities																								
Other Legacy Engine CIP Activities																								

Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
	3	- 3 (umber/Name)
			ircraft Engine Component ent Program
	r	1. 2	· · · · · · · · · · · · · · · · · · ·

Schedule Details

	St	art	End		
Events	Quarter	Year	Quarter	Year	
F-100 Engine CIP activities	1	2016	4	2022	
F-110 Engine CIP Activities	1	2016	4	2022	
F-119 Engine CIP Activities	1	2016	4	2022	
Other Legacy Engine CIP Activities	1	2016	4	2022	

Note

Traditional schedule does not lend itself to Engine CIP activities.

Exhibit R-2A, RDT&E Project Ju	stification	FY 2018 A	ir Force							Date: May	2017	
Appropriation/Budget Activity 3600 / 7		R-1 Progra PE 020726 Improveme		t Èngine Co	675365 <i>Ì F</i>	t (Number/Name) I F135 Aircraft Engine Compone ement Program						
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
675365: F135 Aircraft Engine Component Improvement Program	-	30.329	31.566	32.274	0.000	32.274	32.802	33.412	33.992	34.687	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F135 Aircraft Engine Component Improvement Program (CIP) supports F-35 single-engine fighter propulsion system. It provides the only source of critical developmental engineering support for the F135 propulsion system. F135 CIP maintains flight safety (highest priority), corrects service revealed deficiencies, improves system Operational Readiness (OR) and Reliability & Maintainability (R&M), reduces propulsion system Life Cycle Cost (LCC), and sustains the propulsion system throughout its service life. Historically, aircraft systems change missions, tactics, and environment (including new fuels) and meet changing threats throughout their lives. New technical problems can develop in the propulsion system through actual use and the F135 CIP provides the means to develop fixes for these problems. F135 CIP funding is driven by field events and type/maturity of the propulsion system, not by the total quantity of engines. The program starts with government acceptance of the first procurement-funded engine and continues over the propulsion system's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older engines operational. F135 CIP, through "Lead the Fleet" operational use and accelerated mission testing, identifies and fixes propulsion-related problems ahead of operational impacts. F135 CIP ensures continued improvements in R&M, which reduce out year support costs. Historically, R&M related CIP efforts significantly reduce out year O&M and spares costs.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018
Title: F135 Aircraft Engine Improvement Program	30.329	31.566	32.274
Description: The Aircraft Engine Component Improvement Program (CIP) provides the only source of critical developmental engineering support for F-35 propulsion systems to maintain flight safety (highest priority) for this single-engine fighter, correct service revealed deficiencies, improve system operational readiness (OR) and reliability & maintainability (R&M), reduce engine Life Cycle Cost (LCC), and sustain engines throughout their service life. Funds may be used to address emerging and short-notice Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues. FY 2016 Accomplishments: - Executed approximately 25+ AF-funded F135 engine tasks supporting initial flying operations. - Addressed safety of flight, engine component redesign, repair/rework procedures and life limit/mission analysis. - Validated redesigned parts and new repair procedures.			
- Maintained/improved engine flight safety, improve system operational readiness and reliability & maintainability, reduce engine life cycle cost, and sustain engine throughout service life.			
FY 2017 Plans:			

PE 0207268F: Aircraft Engine Component Improvement Pr... Air Force

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force		Date: N	May 2017	
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207268F I Aircraft Engine Component Improvement Program	Project (Number/ 675365 / F135 Airo Improvement Prog	craft Engine (Component
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018
 Execute approximately 25+ AF-funded F135 engine tasks supporting the conduct accelerated mission test and analytical condition inspection. Address safety of flight, engine component redesign, repair/reworkers. Validate redesigned parts and new repair procedures. Maintain/improve engine flight safety, improve system operational cycle cost, and sustain engine throughout service life. Funds may be used to address emerging and short-notice Diministrissues. 	on. procedures and life limit/mission analysis. readiness and reliability & maintainability, reduce engine			
FY 2018 Plans: - Execute approximately 25+ AF-funded F135 engine tasks supporti - Conduct accelerated mission test and analytical condition inspectional Address safety of flight, engine component redesign, repair/rework Validate redesigned parts and new repair procedures Maintain/improve engine flight safety, improve system operational cycle cost, and sustain engine throughout service life Funds may be used to address emerging and short-notice Diminist issues.	on. procedures and life limit/mission analysis. readiness and reliability & maintainability, reduce engine			

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

_ .

N/A

Remarks

Program Element 0205633N provides US Navy funding support for the F135 propulsion system.

D. Acquisition Strategy

Contracts within this program are projected to be awarded sole source to engine manufacturer. F-135 Engine CIP tasks are generally assigned to the original engine manufacturer based on available funding and prioritization of candidates.

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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30.329

31.566

32.274

Accomplishments/Planned Programs Subtotals

Exhibit R-3, RDT&E		<u>_</u>	0107111	0100		1					1		May 201	<i>'</i>	
Appropriation/Budge 3600 / 7	et Activity	1				PE 020	ogram Ele 7268F / A ement Pro	ircraft Èn		,	675365	(Number I F135 Ai ement Pro	rcraft Éng	gine Comp	oonent
Product Developme	nt (\$ in M	illions)		FY 2	016	FY 2	2017	FY 2 Ba	II	FY 2		FY 2018 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	Total Cost	Target Value of Contrac
Aircraft Engine CIP: Develop F135 engine improvements	SS/CPFF	Pratt & Whitney : Hartford, CT	-	22.068	Jan 2016	22.804	Jan 2017	16.573	Jan 2018	0.000		16.573	Continuing	Continuing	-
	'	Subtotal	-	22.068		22.804		16.573		0.000		16.573	-	-	-
FY18 Cost increase (\$93K Support (\$ in Million				FY 2	016	FY 2	2017	FY 2 Ba		FY 2		FY 2018 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	Total Cost	Target Value of Contrac
		Subtotal	-	-		-		-		-		-	-	Total Cost	-
Test and Evaluation	(\$ in Milli	ons)		FY 2	016	FY 2	2017	FY 2 Ba		FY 2		FY 2018 Total		Total Cost	
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 Total Cost	Target Value of Contrac
Aircraft Engine CIP: Ground test and validate engine improvements	РО	AEDC : Arnold AFB, TN	-	7.909	Oct 2015	8.464	Oct 2016	15.400	Oct 2017	0.000		15.400	Continuing	Continuing	-
		Subtotal	-	7.909		8.464		15.400		0.000		15.400	-	-	-
Management Service	es (\$ in M	illions)		FY 2	016	FY 2	2017	FY 2 Ba		FY 2		FY 2018 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	Cost	Target Value of Contrac
Aircraft Engine CIP: PMA	Various	Various : Various	-		Oct 2015	0.298	Oct 2016	0.301	Oct 2017	0.000			Continuing	Continuing	-
		Subtotal	-	0.352		0.298		0.301		0.000		0.301	-	-	-

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Exhibit R-3, RDT&E Project Cost	Analysis: FY 2	018 Air F	orce					Date:	May 2017	•	
Appropriation/Budget Activity 3600 / 7	• • • • • • • • • • • • • • • • • • • •					R-1 Program Element (Number/Name) PE 0207268F I Aircraft Engine Component Improvement Program Project 675365 Improve					
		Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2		′ 2018 otal	Cost To	Total Cost	Target Value of Contract
P	roject Cost Totals	-	30.329	31.566	32.274	0.000		32.274	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: FY 2018	ir Foا	rce																				Dat	e: M	ay 2	017	,		
3600 / 7						R-1 Program Element (Number/Name) PE 0207268F I Aircraft Engine Component Improvement Program								Project (Number/Name) 675365 I F135 Aircraft Engine Component Improvement Program														
	FY 2016 FY 201				2017	17 FY 2018 FY 2019 FY							FY 2	2020 FY 2021 FY 2022														
F-135 Engine CIP Tasks	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

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force	Date: May 2017		
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (N	umber/Name)
3600 / 7	PE 0207268F I Aircraft Engine Component	675365 <i>I F</i>	135 Aircraft Engine Component
	Improvement Program	Improveme	ent Program

Schedule Details

	St	art	End			
Events	Quarter	Year	Quarter	Year		
F-135 Engine CIP Tasks	1	2016	4	2022		