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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600: Research, Development, Test & Evaluation, Air Force I BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	50,438.576	282.126	69.001	7.628	0.000	7.628	5.434	0.013	0.000	0.000	0.000	50,802.778
653831: Joint Strike Fighter	50,438.576	263.936	69.001	7.628	0.000	7.628	5.434	0.013	0.000	0.000	0.000	50,784.588
653832: JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT	0.000	18.190	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.190
Program MDAP/MAIS Code: 198												
A. Mission Description and Budget Item Justification												
<p>The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the USN, USAF, USMC and allies. The three variants are the F-35A conventional takeoff and landing; F-35B short takeoff and vertical landing; and the F-35C Aircraft Carrier suitable variant. The F-35A will be a stealthy multi-role aircraft, primary air-to-ground for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A-18 for the Marine Corps, replace the Sea Harrier and GR 7 for the United Kingdom, and replace the AV-8 currently employed by the Italian Navy. The F-35C will provide the Department of the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F.</p> <p>The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark, Norway, and Foreign Military Sales customers are also participants in the JSF program. The program shown here reflects USN, USMC, USAF, and International Partner funding.</p> <p>Funding at the accomplishment/planned program level is reported as the total of all services and partners as these activities support all aircraft variants.</p> <p>The System Development and Demonstration (SDD) budget funds a total quantity of 20 RDT&E test articles to include 6 ground test articles and 14 flight test articles for USN, USAF, and USMC use.</p> <p>FY07: 1 F-35A flight test article FY08: 1 F-35B flight test article; 1 F-35B ground test article FY09: 1 F-35B flight test article; 2 F-35A ground test articles FY10: 6 flight test articles: 3 F-35A, 2 F-35B, 1 F-35C; 3 ground test articles: 1 F-35B, 2 F-35C FY11: 4 flight test articles: 1 F-35A,1 F-35B, 2 F-35C FY13: 1 F-35C flight test article</p> <p>As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.</p>												

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Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I</i> BA 5: <i>System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604800F / <i>F-35 - EMD</i>
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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.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020 Base</u>	<u>FY 2020 OCO</u>	<u>FY 2020 Total</u>
Previous President's Budget	292.947	69.001	7.743	0.000	7.743
Current President's Budget	282.126	69.001	7.628	0.000	7.628
Total Adjustments	0.000	0.000	-0.115	0.000	-0.115
• 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	-0.115	0.000	-0.115

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD				Project (Number/Name) 653831 / Joint Strike Fighter			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
653831: Joint Strike Fighter	50,438.576	263.936	69.001	7.628	0.000	7.628	5.434	0.013	0.000	0.000	0.000	50,784.588
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Total cost including United States Navy (USN), United States Marine Corps (USMC), International partner contributions and United States Air Force (USAF) funding are: FY18 \$537.671M and FY19 \$196.104M and FY20 \$10.828 R-2 data reflects variant unique funding only.

R-2A(section B)/R-3 displays total combined Program (i.e. not Service specific), including International partners.

F-35 EMD Includes:

USAF PE 0604800F BPAC 653831

USN PE 0604800N Project Unit 2261

USMC PE 0604800M Project Unit 2262

D&S Includes:

USAF PE 0604800F BPAC 653832

USN PE 0604800N Project Unit 3352

USMC PE 0604800M Project Unit 3350

A. Mission Description and Budget Item Justification

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the USN, USAF, USMC and allies. The three variants are the F-35A conventional takeoff and landing; F-35B short takeoff and vertical landing; and the F-35C Aircraft Carrier suitable variant. The F-35A will be a stealthy multi-role aircraft, primary air-to-ground for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A-18 for the Marine Corps, replace the Sea Harrier and GR 7 for the United Kingdom, and replace the AV-8 currently employed by the Italian Navy. The F-35C will provide the Department of the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F.

The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark, Norway, and Foreign Military Sales customers are also participants in the JSF program. The program shown here reflects USN, USMC, USAF, and International Partner funding.

Funding at the accomplishment/planned program level is reported as the total of all services and partners as these activities support all aircraft variants.

The System Development and Demonstration (SDD) budget funds a total quantity of 20 RDT&E test articles to include 6 ground test articles and 14 flight test articles for USN, USAF, and USMC use.

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FY07: 1 F-35A flight test article FY08: 1 F-35B flight test article; 1 F-35B ground test article FY09: 1 F-35B flight test article; 2 F-35A ground test articles FY10: 6 flight test articles: 3 F-35A, 2 F-35B, 1 F-35C; 3 ground test articles: 1 F-35B, 2 F-35C FY11: 4 flight test articles: 1 F-35A, 1 F-35B, 2 F-35C FY13: 1 F-35C flight test article						
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: System Development and Demonstration (SDD) (F-35 JSF) Description: SDD execution of the Air System with Lockheed Martin, including International Commonality Effort which includes airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. FY 2019 Plans: Continue SDD execution of the Air System with Lockheed Martin, including International Commonality Effort which includes, airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to IMS in accordance with variant IOC. FY 2020 Base Plans: Continue SDD execution of the Air System with Lockheed Martin, including International Commonality Effort which includes, airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to IMS in accordance with variant IOC. Conduct SDD closure activities including FCA/PCA in order to establish production specification and transition to post-SDD, production and sustainment. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: FY20 funding decrease is due to reduction in domestic and International controls as SDD phase draws to closure.		377.434	105.710	10.828	0.000	10.828
Title: F135 Propulsion System (F-35 JSF) Description: SDD execution of the F135 Propulsion System with Pratt & Whitney that includes engine testing, autonomic logistics, integration and performing technology maturation efforts. FY 2019 Plans:		0.000	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A					
FY 2020 Base Plans: N/A					
FY 2020 OCO Plans: N/A					
FY 2019 to FY 2020 Increase/Decrease Statement: N/A					
Title: Systems Engineering (SE) (F-35 JSF) Description: SDD SE including systems operations requirements analysis, program integration, requirements integration, and interoperability support. FY 2019 Plans: N/A FY 2020 Base Plans: N/A FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: N/A	0.911	0.000	0.000	0.000	0.000
Title: Development Test and Evaluation (DT&E) (F-35 JSF) Description: Government DT&E/Operational Testing (OT) in support of first flight of test aircraft. Elements of DT&E includes preparation for flight testing and weapons integration testing. FY 2019 Plans: Continue government DT&E/IOT&E in support of test aircraft. Continue flight sciences testing of CTOL, STOVL, and CV variants to expand air vehicle envelope and support mission systems testing. Elements of DT&E include flight testing, weapons integration testing, and component capabilities testing. FY 2020 Base Plans:	98.035	76.935	0.000	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
IOT&E conclusion and reporting requirements. FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: FY20 funding decrease is due to reduction in domestic and International controls as SDD phase draws to closure.					
Title: Development Support (F-35 JSF) Description: SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. FY 2019 Plans: Continue SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. FY 2020 Base Plans: N/A FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: FY20 funding decrease is due to reduction in domestic and International controls as SDD phase draws to closure.	20.598	13.459	0.000	0.000	0.000
Title: Autonomic Logistics Information System (ALIS) Description: SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users. FY 2019 Plans: N/A FY 2020 Base Plans: N/A FY 2020 OCO Plans:	40.694	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)							FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A											
FY 2019 to FY 2020 Increase/Decrease Statement: N/A											
Title: Other Service Funding Adjustment (F-35 JSF)							0.000	0.000	0.000	0.000	0.000
Description: Balancer line											
FY 2019 Plans: Continue SDD execution of ALIS to develop the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.											
FY 2020 Base Plans: N/A											
FY 2020 OCO Plans: N/A											
FY 2019 to FY 2020 Increase/Decrease Statement: N/A											
Accomplishments/Planned Programs Subtotals							537.672	196.104	10.828	0.000	10.828
Other Service Funding Adjustment							273.736	127.103	3.200	-	3.200
Air Force Subtotals							263.936	69.001	7.628	0.000	7.628
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• RDTE 05 PE 0604800N 2261: JSF SDD (CV)	100.084	60.537	1.490	-	1.490	0.238	0.252	0.234	0.234	0.000	163.069
• RDTE 05 PE 0604800N 3352: F-35C Sustainment/ Capability Enhancements (CV)	5.564	4.957	-	-	-	-	-	-	-	0.000	10.521
• RDTE 05 PE 0604800M 2262: JSF SDD (STOVL)	146.202	66.566	1.710	-	1.710	0.540	0.556	0.567	0.578	0.000	216.719
• RDTE 05 PE 0604800M 3350: F-35B Sustainment/	10.960	-	-	-	-	-	-	-	-	0.000	10.960

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Capability Enhancements (STOVL), BPAC 3350											
• RDTE International	27.450	0.000	-	-	-	-	-	-	-	0.000	27.450
1: International SDD											
Remarks											
D. Acquisition Strategy											
<p>The SDD program consists of a cost-reimbursement contract awarded to Lockheed Martin Aeronautics Company to develop the F-35 Air System, consisting of three aircraft variants and its associated logistics support system, for the U.S. Services and international participants. Similarly, a cost-reimbursement contract was awarded to Pratt & Whitney to develop the F135 propulsion system. Ground and flight testing will be conducted during development to accomplish validation and verification, with the extensive use of modeling and simulation to offset the risk of this large, complex, and concurrent lifecycle program. A comprehensive logistics support environment, including an integrated training system for aircrew, maintenance, and support personnel, is also being developed.</p> <p>On 25 April 2011, the Department of Defense terminated the development of the General Electric Rolls-Royce Fighter Engine Team F136 propulsion system.</p> <p>The F-35 Program has made international involvement a key element of the acquisition strategy. This includes international partnership in the development, production, and sustainment phases of the lifecycle. Additional international participation includes Foreign Military Sales arrangements.</p> <p>In Fiscal Year (FY) 2007, separate cost-type contracts were awarded to Lockheed Martin Aeronautics Company and Pratt & Whitney to begin low rate initial production for F-35 air vehicles, propulsion systems, and sustainment for the fielded systems. Transition to fixed-price-type procurement contracts occurred with the fourth low rate lot. To provide logistics support for delivered aircraft, Performance-Based Logistics cost-type contracts will be awarded to Lockheed Martin Aeronautics Company and Pratt & Whitney.</p> <p>At the completion of Low Rate Initial Production, a Defense Acquisition Board review, and Milestone Decision Authority approval, the F-35 Program will enter Full Rate Production. Fixed-price procurement contracts will be awarded for F-35 air vehicles and propulsion systems for the U.S. Services and international participants. Multiyear procurement authority for the F-35 Air System will be requested for Full Rate Production. Concurrently, multiple-year, fixed-price-type Performance Based Logistics contracts for sustainment will be requested to support multi-Service and multi-national requirements.</p>											
E. Performance Metrics											
<p>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.</p>											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD				Project (Number/Name) 653831 / Joint Strike Fighter					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Lockheed Martin - SDD	SS/CPIF	Lockheed Martin : Ft. Worth, TX	32,030.502	348.078	Dec 2017	96.560	Dec 2018	10.828	Dec 2019	-		10.828	9.182	32,495.150	32,501.514
Lockheed Martin - SDD Fee	SS/CPIF	Lockheed Martin : Ft. Worth, TX	1,738.689	6.354	Dec 2017	9.150	Dec 2018	0.000		-		0.000	0.000	1,754.193	1,754.193
Lockheed Martin -0031	SS/CPFF	Lockheed Martin : Ft. Worth, TX	462.538	40.694	Dec 2017	0.000	Dec 2018	-		-		-	0.000	503.232	503.232
Lockheed Martin - BOA 0020	SS/CPFF	Lockheed Martin : Ft. Worth, TX	0.843	0.169	Dec 2017	-		-		-		-	0.000	1.012	1.012
Lockheed Martin - BOA 0016	SS/CPFF	Lockheed Martin : Ft. Worth, TX	221.119	9.813	Dec 2017	-		-		-		-	0.000	230.932	230.932
Pratt & Whitney - SDD	SS/CPIF	Pratt &Whitney : Hartford, CT	7,401.776	11.220	Jan 2018	-		-		-		-	0.000	7,412.996	7,412.996
Pratt & Whitney - Fee	SS/CPIF	Pratt &Whitney : Hartford, CT	692.198	1.800	Sep 2018	-		-		-		-	0.000	693.998	693.998
Systems Engineering	Various	Various : Various	458.948	0.911	Dec 2017	-		-		-		-	0.000	459.859	459.859
Prime LM 02-C-3002 ALIS	SS/CPAF	LM : Ft Worth, TX	2,909.122	0.000		-		-		-		-	0.000	2,909.122	2,909.122
Subtotal			45,915.735	419.039		105.710		10.828		-		10.828	9.182	46,460.494	N/A
Remarks Contract type prior to 2013 was CPAF. Cumulative Award Fee earned in prior years for Lockheed Martin is 97%. Cumulative Award Fee earned in prior years for Pratt and Whitney is 98%.															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
AFFTC/Eglin	Various	Various : Various	140.760	0.830	Nov 2017	-		-		-		-	0.000	141.590	141.590
Miscellaneous	Various	Various : Various	135.872	12.855	Nov 2017	12.480	Nov 2018	-		-		-	0.000	161.207	161.207
NAWC Patuxent River	Various	NAWC AD : Patuxent River, MD	547.210	6.913	Nov 2017	-		-		-		-	0.000	554.123	554.123
Prior Year no longer funded in FYDP	Various	Various : Various	527.808	-		-		-		-		-	0.000	527.808	527.808

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Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Subtotal			1,351.650	20.598		12.480		-		-		-	0.000	1,384.728	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
NAWC China Lake	Various	NAWC WD : China Lake, CA	43.257	-		0.004		-		-		-	0.000	43.261	-
Development Test and Evaluation	Various	NAWC AD : Patuxent River, MD	807.112	4.400	Nov 2017	0.051		-		-		-	0.000	811.563	-
Edwards AFB	Various	Edwards AFB : Edwards AFB, CA	738.919	4.400	Nov 2017	0.045		-		-		-	0.000	743.364	-
Other (including Classified PIDs)	Various	Various : Various	271.874	2.400	Nov 2017	-		-		-		-	0.000	274.274	-
OT - AFOTEC/AFFTC	Various	OT AFOTEC/ AFFTC : Various	239.981	61.610	Nov 2017	0.000		-		-		-	0.000	301.591	-
OT - JITC/OPTEV	Various	OT JITC/OPTEV : Various	104.199	19.609	Nov 2017	0.000		-		-		-	0.000	123.808	-
OT - Various	Various	Various : Various	10.598	5.528	Nov 2017	77.726	Nov 2018	-		-		-	0.000	93.852	-
Prior Year no longer funded in FYDP	Various	Various : TBD	41.740	-		-		-		-		-	0.000	41.740	-
Subtotal			2,257.680	97.947		77.826		-		-		-	0.000	2,433.453	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Travel	C/CPAF	Various : Various	0.493	0.088	Dec 2017	0.088	Oct 2018	-		-		-	0.000	0.669	0.000
Prior Year not funded in FYDP	Various	Various : Various	913.018	-		-		-		-		-	0.000	913.018	0.000
Subtotal			913.511	0.088		0.088		-		-		-	0.000	913.687	N/A

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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Remarks															
Cumulative Award Fee earned in prior years for Stanley is 99%.															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals			50,438.576	537.672		196.104		10.828		-		10.828	9.182	51,192.362	N/A
Other Service Funding Adjustment			-	273.736		127.103		3.200		-		3.200			-
Project Cost Totals			50,438.576	263.936		69.001		7.628		-		7.628	9.182	51,192.362	-
Remarks															
The project information shown here reflects USN, USMC, USAF and International Partner funding total for each contract. By agreement USN and USMC funding shares are approximately equal and when combined are equal to the USAF share.															
NOTE 1: Prior Years reflect \$21,988.772M USAF/\$19,801.023M USN/\$3,662.768M USMC /\$4,986.013M International/Total \$50,438.576M FY 2018 reflects \$263.936M USAF/\$100.084M USN/\$146.202M USMC/\$27.45M International/Total \$537.672M FY 2019 reflects \$ 69.001M USAF/\$ 60.537M USN/\$ 66.566M USMC/Total \$196.104M FY 2020 reflects \$ 7.628M USAF/\$ 1.490M USN/\$ 1.710M USMC/Total \$10.828M															
JSF EMD Includes: USAF PE 0604800F BPAC 653831 USN PE 0604800N Project Unit 2261 USMC PE 0604800M Project Unit 2262															
D&S Includes: USAF PE 0604800F BPAC 653832 USN PE 0604800N Project Unit 3352 USMC PE 0604800M Project Unit 3350															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force			Date: February 2019		
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD		Project (Number/Name) 653831 / Joint Strike Fighter	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
JSF Variants - CV, STOVL & CTOL																												
Acquisition Milestones: F-35C Initial Operational Capability																												
Test & Evaluation: Test and Evaluation: Block 3F DT&E/Cert																												
Test & Evaluation: Test and Evaluation: Initial Operational Test and Evaluation (IOT&E)																												
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY18																												
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY19																												
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY20																												
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY21																												
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 10 Full Funding / Production / Delivery																												
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 11 Full Funding / Production / Delivery																												
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 12 Full Funding / Production / Delivery																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force																				Date: February 2019																	
Appropriation/Budget Activity 3600 / 5										R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD								Project (Number/Name) 653831 / Joint Strike Fighter																			
										FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
										1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 13 Full Funding / Production / Delivery																																					
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 14 Full Funding / Production / Delivery																																					
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 15 Full Funding / Production / Delivery																																					
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 16 Full Funding / Production / Delivery																																					

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD	Project (Number/Name) 653831 / Joint Strike Fighter	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>JSF Variants - CV, STOVL & CTOL</i>				
Acquisition Milestones: F-35C Initial Operational Capability	2	2019	2	2019
Test & Evaluation: Test and Evaluation: Block 3F DT&E/Cert	1	2018	2	2018
Test & Evaluation: Test and Evaluation: Initial Operational Test and Evaluation (IOT&E)	1	2019	1	2020
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY18	1	2019	1	2019
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY19	1	2020	1	2020
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY20	1	2021	1	2021
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY21	1	2022	1	2022
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 10 Full Funding / Production / Delivery	2	2018	2	2019
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 11 Full Funding / Production / Delivery	2	2019	1	2020
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 12 Full Funding / Production / Delivery	2	2020	1	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 13 Full Funding / Production / Delivery	2	2021	1	2022
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 14 Full Funding / Production / Delivery	2	2022	4	2023
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 15 Full Funding / Production / Delivery	2	2023	4	2023

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force			Date: February 2019		
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD		Project (Number/Name) 653831 / Joint Strike Fighter	
		Start		End	
Events by Sub Project		Quarter	Year	Quarter	Year
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LOT 16 Full Funding / Production / Delivery		2	2023	2	2024
Note Schedule details reflect fiscal years					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 5					R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD				Project (Number/Name) 653832 / JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
653832: JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT	0.000	18.190	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.190
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Total cost including United States Navy (USN), United States Marine Corps (USMC), United States Air Force (USAF) funding and International Partner contributions to D&S is: FY2016 \$184.378M, FY2017 \$125.862M, FY2018 \$42.258M and FY2019 \$4.957M

R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.

D&S Includes:

USAF PE 0604800F BPAC 653832

USN PE 0604800N Project Unit 3352

USMC PE 0604800M Project Unit 3350

A. Mission Description and Budget Item Justification

Funds enhancements to the Deployability and Suitability (D&S) of the air system such as low observable (LO) maintenance enhancements, security architecture updates, redesign of obsolete items and integrated training simulators. These enhancements will provide vital on-demand support to the warfighter within a deployed environment and are not funded via the existing System Development and Demonstration (SDD) program or tied to Block 4 Operational Flight Program development. Funding will result in achieving targeted suitability, maintainability, and affordability returns employing the F-35 in deployed or austere locations.

Funding at the accomplishment/planned program level is reported as the total of all services as these activities support all aircraft variants. By agreement, USN and USMC funding shares are approximately equal and when combined are equal to the USAF share.

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

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Sustainment and Capability Enhancements (F-35 JSF)	25.367	4.957	0.000	0.000	0.000
Description: Apply disciplined systems engineering, refinement of requirements, develop and acquire suitability and maintainability of the air system such as decentralized maintenance capabilities, LO maintenance enhancements, security architecture updates, redesign of obsolete items and integrated training simulators.					
FY 2019 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force				Date: February 2019				
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD		Project (Number/Name) 653832 / JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT				
B. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue to conduct systems engineering, technical maturation, integration and test planning for suitability and deployability enhancements. Conclude sustaining engineering development and test activities necessary to gain capacity, compatibility, and expansion and wiring, power, wing conduits, etc. in support of electronic warfare. This includes funding for suitability enhancements related to distributed mission training (DMT). FY 2020 Base Plans: N/A FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: FY20 sustainment/capability enhancements funding decrease is do to reduction in domestic and international controls in conjunction with SDD phase drawing to closure.								
Title: Development Support (F-35 JSF) Description: SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. FY 2019 Plans: No funding requested in FY19. FY 2020 Base Plans: N/A FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: N/A				1.000	0.000	0.000	0.000	0.000
Title: Development Test and Evaluation Description: Verification and testing for deployability and suitability enhancements. FY 2019 Plans: No funding requested in FY19. FY 2020 Base Plans:				0.500	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019			
Appropriation/Budget Activity 3600 / 5		R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD	Project (Number/Name) 653832 / JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT			
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A						
FY 2020 OCO Plans: N/A						
FY 2019 to FY 2020 Increase/Decrease Statement: N/A						
Title: Autonomic Logistics Information System Description: SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users. FY 2019 Plans: No funding requested in FY19. FY 2020 Base Plans: N/A FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement: N/A		14.728	0.000	0.000	0.000	0.000
Title: Other Program Funding (F-35 JSF) Description: NOTE: Balancer line since the R2A/R3 represents a joint budget. FY 2019 Plans: No funding requested in FY19. FY 2020 Base Plans: N/A FY 2020 OCO Plans: N/A FY 2019 to FY 2020 Increase/Decrease Statement:		0.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 5				R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD				Project (Number/Name) 653832 / JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT				
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A												
Accomplishments/Planned Programs Subtotals								41.595	4.957	0.000	0.000	0.000
Other Service Funding Adjustment								23.405	4.957	-	-	-
Air Force Subtotals								18.190	0.000	0.000	0.000	0.000
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• RDTE 05 PE 0604800F 3831: JSF SDD, BPAC 653831	263.936	69.001	7.628	-	7.628	5.434	0.013	0.000	0.000	0.000	346.012	
• RDTE 05 PE 0604800N 2261: JSF SDD (CV)	100.084	60.537	1.490	-	1.490	0.238	0.252	0.234	0.234	0.000	163.069	
• RDTE 05 PE 0604800N 3352: F-35C Sustainment/ Capability Enhancements (CV)	5.564	4.957	0.000	-	0.000	-	-	-	-	0.000	10.521	
• RDTE 05 PE 0604800M 2262: JSF SDD (STOVL)	146.202	66.566	1.710	-	1.710	0.540	0.556	0.567	0.578	0.000	216.719	
• RDTE 05 PE 0604800M 3350: F-35B Sustainment/ Capability Enhancements (STOVL), BPAC 3350	10.960	0.000	-	-	-	-	-	-	-	0.000	10.960	
• RDTE International 1: International SDD	27.450	0.000	-	-	-	-	-	-	-	0.000	27.450	
Remarks												
This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Air Force. Program Element 0604800N/0604800M continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark, and Norway are participants in the SDD phase of JSF.												
Note: The USAF/USN/USMC procurement lines include Aircraft Procurement and Advanced Procurement only. Initial Spares and Repair Parts for all Services are reflected in separate lines. International Partner Funding also includes funds provided under the Italy and Netherlands Bilateral agreements.												

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD	Project (Number/Name) 653832 / JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT	

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

<u>Line Item</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u> <u>Base</u>	<u>FY 2020</u> <u>OCO</u>	<u>FY 2020</u> <u>Total</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
RELATED RDT&E: Funding prior to JSF SDD (FY94-FY01): USN PE 0603800N \$1,950.617M; USAF PE 0603800F \$1,907.352M; DARPA PE 0603800E \$118.056M; and International Partner contributions of \$253.921M for a total of \$4,229.946M.											

D. Acquisition Strategy

Implement JSF Joint Executive Steering Board (JESB)/Configuration Steering Board (CSB) approved enhancements through existing contracts using the engineering change proposal process. When appropriate, new cost type contracts may be established.

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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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD				Project (Number/Name) 653832 / JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Primary Hardware Development - 3002 SDD	SS/CPFF	Lockheed Martin : Fort Worth, TX	0.000	22.992	Mar 2018	4.957	Mar 2019	-		-		-	4.995	32.944	105.824
Primary Hardware Development - 3002 ALIS	SS/CPFF	Lockheed Martin : Fort Worth, TX	0.000	14.728	Mar 2018	-		-		-		-	0.000	14.728	209.271
Primary Hardware Development - 14-C-0002 Band 2/5	SS/CPFF	Lockheed Martin : Fort Worth, TX	0.000	2.375	Mar 2018	-		-		-		-	0.000	2.375	122.925
Subtotal			0.000	40.095		4.957		-		-		-	4.995	50.047	N/A
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Development Support	Various	AFLCMC : Eglin AFB, FL	0.000	-		-		-		-		-	0.000	0.000	-
Various	Various	Various : Various, NV	0.000	1.000	Mar 2018	-		-		-		-	0.000	1.000	-
Subtotal			0.000	1.000		-		-		-		-	0.000	1.000	N/A
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Developmental Test & Evaluation	WR	Various : Various, NV	0.000	0.500	Mar 2018	-		-		-		-	0.000	0.500	-
Subtotal			0.000	0.500		-		-		-		-	0.000	0.500	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 5						R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD						Project (Number/Name) 653832 / JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT			
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Other Service Funding Adjustment	TBD	Not specified. : TBD	0.000	0.000		-		-		-		-	0.000	0.000	-
Program Management	Various	Various : Various, NV	0.000	-		-		-		-		-	0.000	0.000	-
Subtotal			0.000	0.000		-		-		-		-	0.000	0.000	N/A
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals			0.000	41.595		4.957		-		-		-	4.995	51.547	N/A
Other Service Funding Adjustment			-	23.405		4.957		-		-		-			-
Project Cost Totals			0.000	18.190		0.000		-		-		-	4.995	51.547	-
Remarks															
NOTE: Prior Years reflect \$201.397M USAF/\$92.036M USN/\$82.175M USMC/\$88.669M International/Total \$464.307M FY 2018 reflects \$18.190M USAF/\$ 5.564M USN/\$10.960M USMC/\$ 6.881M International/Total \$ 41.595M FY 2019 reflects \$ 0.000M USAF/\$ 4.957M USN/\$ 0.000M USMC/\$ 0.000M International/Total \$ 4.957M FY 2020 reflects \$ 0.000M USAF/\$ 0.000M USN/\$ 0.000M USMC/\$ 0.000M International/Total \$ 0.000M															
R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.															
JSF EMD Includes: USAF PE 0604800F BPAC 653831 USN PE 0604800N Project Unit 2261 USMC PE 0604800M Project Unit 2262															
D&S Includes: USAF PE 0604800F BPAC 653832 USN PE 0604800N Project Unit 3352 USMC PE 0604800M Project Unit 3350															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019									
Appropriation/Budget Activity 3600 / 5										R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD									
										Project (Number/Name) 653832 / JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT									

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
F-35 Deployability and Suitability																												
D&S: Standard Operating Unit (SOUv2)																												
D&S: Band 2/5																												
D&S: Security Architecture																												
D&S: Offboard Mission Support (OMS) Redesign																												
D&S: Distributed Mission Training/Distributed Mission Operations (DMT/DMO)																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604800F / F-35 - EMD	Project (Number/Name) 653832 / JSF DEPLOYABILITY AND SUITABILITY ENHANCEMENT

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F-35 Deployability and Suitability</i>				
D&S: Standard Operating Unit (SOUv2)	1	2018	4	2018
D&S: Band 2/5	1	2018	3	2018
D&S: Security Architecture	1	2018	3	2019
D&S: Offboard Mission Support (OMS) Redesign	1	2018	4	2019
D&S: Distributed Mission Training/Distributed Mission Operations (DMT/DMO)	1	2018	4	2019

Note

Schedule details reflect fiscal years