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

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	501.609	514.462	544.625	480.759	-	480.759	517.621	460.787	449.975	439.567	Continuing	Continuing
0358: Utility and Subsystem Support to Mission Systems	0.000	0.000	8.113	13.520	-	13.520	13.521	8.113	5.409	5.523	Continuing	Continuing
2567: Air Vehicle - Technology Refresh 3 (TR-3)	66.849	62.768	3.023	1.279	-	1.279	1.296	5.359	10.569	10.791	Continuing	Continuing
2568: Air Vehicle Block 4 Planning & Sys Eng	168.878	169.146	177.118	125.447	-	125.447	148.615	97.772	124.044	126.646	Continuing	Continuing
2569: Test and Evaluation (T&E)	120.365	112.755	132.946	138.904	-	138.904	140.480	125.541	111.628	94.121	Continuing	Continuing
2570: Propulsion (PP)	14.541	22.160	130.251	124.664	-	124.664	103.954	107.958	98.316	100.380	Continuing	Continuing
2571: Maintenance Systems (MxS)	21.937	24.005	18.106	11.030	-	11.030	17.865	16.065	14.453	14.756	Continuing	Continuing
2572: Combat Data Systems (CDS)	20.355	25.514	17.817	8.382	-	8.382	12.286	20.841	9.517	9.717	Continuing	Continuing
2573: Training Systems and Simulation (TSS)	38.749	35.876	30.331	26.722	-	26.722	33.868	48.100	31.632	32.296	Continuing	Continuing
2574: Infrastructure and Support Costs	2.424	6.284	2.691	2.761	-	2.761	3.112	3.156	2.911	2.972	Continuing	Continuing
2575: DevSecOps	13.573	7.503	9.072	10.347	-	10.347	12.931	1.418	17.761	18.132	Continuing	Continuing
2576: F-35 USMC Unique	33.938	30.351	15.157	17.703	-	17.703	29.693	26.464	23.735	24.233	Continuing	Continuing
9999: Congressional Adds	0.000	18.100	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	18.100

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 198

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 United States Navy, United States Air Force, United States Marine Corps and International Partners countries. There are three variants the F-35A Conventional Takeoff and Landing variant; F-35B Short Take Off and Vertical Landing; and the F-35C Aircraft Carrier suitable variant. Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize total air system life cycle costs. Planning, systems engineering, development, and testing for Block 4 and additional capabilities as part

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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Navy	Date: March 2024
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2
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of the C2D2 acquisition strategy continues across the F-35 Air System to include the air vehicle, propulsion system, combat data systems, maintenance systems, and training systems as Initial Operational Capability (IOC) has been met for each variant.

The JSF Continuous Capability Development & Delivery (C2D2) efforts provide incremental warfighting capability improvements to maintain joint air dominance against evolving threats. Block 4 capability requirements were initiated through ongoing Service-led operational analysis of warfighting gaps identified in the Fifth Generation Fighter Modernization Initial Capabilities Document (ICD), and through F-35 JSF Block 4 Mission Decomposition analysis completed in FY2014. These analyses served as the basis for the Block 4 Capability Development Document (CDD), staffed through the Air Force Requirements Oversight Council (AFROC) and signed by the USAF Chief of Staff in January 2015. Joint Requirements Oversight Council (JROC) approved the CDD 21 March 2017. Modernization activities in FY2025 continue with the incremental releases of capabilities & execution of continuous development efforts as part of the C2D2 acquisition strategy. Block 4 efforts include a robust weapons integration portfolio and provide new opportunities for International Partners to assess, integrate, and field unique capabilities based on global sovereign requirements.

The United Kingdom, Italy, Netherlands, Canada, Australia, Denmark and Norway are participants in F-35 modernization. The program shown here reflects United States Navy funding. Total funding for all Service and International Partners is reported at the accomplishment/planned program level since activities support all aircraft variants. Foreign Military Sales are ongoing separately.

PE 0604840M/N replacing PE 0604810M/N beginning in FY2019 due to budget being moved from BA05 to BA07.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	531.032	544.625	550.377	-	550.377
Current President's Budget	514.462	544.625	480.759	-	480.759
Total Adjustments	-16.570	0.000	-69.618	-	-69.618
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-16.570	0.000			
• Program Adjustments	0.000	0.000	-71.273	-	-71.273
• Rate/Misc Adjustments	0.000	0.000	1.655	-	1.655

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

Appropriation/Budget Activity
 1319: *Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development*

R-1 Program Element (Number/Name)
 PE 0604840M / *F-35B C2D2*

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

Project: 9999: *Congressional Adds*

Congressional Add: *F135 Engine Enhancement*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2023	FY 2024
	18.100	0.000
	18.100	0.000
	18.100	0.000

Change Summary Explanation

The FY2025 budget submission accomplishments/planned programs (R-2A) has been updated to mirror the Joint Strike Fighters Program Management Office organizational structure in order to provide more transparency and visibility to development efforts across the F-35 enterprise. Also, the Project Cost Analysis (R-3) exhibit has been updated to include additional cost categories to better display executing efforts. FY2023 values have been updated based on actuals to date.

FY2025 reduction of \$69.6M was a collaborative effort between OSD and the F-35 Joint Program Office. The reduction will leverage FY2024 carryover and rebalance the FY2025 profile to meet execution requirements while maintaining F-35 capability development.

****NOTE**** In FY23, the Foreign Object Damage (FOD) efforts merged into PU 2570 for execution and supports the \$15M increase of funding.

Technical: Not applicable.
 Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 0358 / Utility and Subsystem Support to Mission Systems			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
0358: <i>Utility and Subsystem Support to Mission Systems</i>	0.000	0.000	8.113	13.520	-	13.520	13.521	8.113	5.409	5.523	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

As the United States and its allies are adding new capabilities to outpace growing threats, increased cooling and electrical power capacity will be required to support these new capabilities. In order to address increased thermal loads from new Mission Systems requirements, an upgrade to the Power Thermal Management System (PTMS) and Fuel Thermal Management System (FTMS) is required.

A. Mission Description and Budget Item Justification

Current Mission System planning estimates due to Block 4 capabilities and beyond indicate that additional cooling is required for aircraft beginning in Lot 22 (FY28). This upgrade/modification consists of an upgrade to the current Honeywell PTMS that includes larger heat exchangers, shifting some systems from the cold liquid loop to the hot liquid loop, increasing system pressure, increasing pump speeds and raising compressor discharge temperatures. This modification upgrades components that are relatively low cost and already at a high technical readiness level. All PTMS changes for this level of cooling would be accomplished within the existing PTMS bay and there are not expected to be any necessary changes to the capacity of the cold liquid loop or the hot liquid loop. This work includes nonrecurring engineering for the development, test, and certification of the upgraded PTMS system to ensure suitable cooling is available for future capacities. The Government has assessed that EMD phase would take 5-6 years.

Due to the massive leap in cooling and power needed to support post 2029 mission system upgrades on the F-35 the existing PTMS will need to either be massively upgraded or replaced. During multiple iterations of market research, it is clear that industry is capable of manufacturing a TMS that meets the F-35's cooling and power demands. However, it is unclear which system will be best. Therefor during the initial part of the program, the multiple potential solutions will be matured and then the prime integrator will down select to the system that best meets the Government's cost, schedule, and performance needs.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: PTMS Upgrade	0.000	8.113	13.520	0.000	13.520
Articles:	-	-	-	-	-
Description: Current Mission System planning estimates due to Block 4 capabilities and beyond indicate that additional cooling is required for aircraft beginning in Lot 22 (FY28). This upgrade/modification consists of an upgrade to the current Honeywell PTMS that includes larger heat exchangers, shifting some systems from the cold liquid loop to the hot liquid loop, increasing system pressure, increasing pump speeds and raising compressor discharge temperatures. This modification upgrades components that are relatively low cost and					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 0358 / Utility and Subsystem Support to Mission Systems

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>already at a high technical readiness level. All PTMS changes for this level of cooling would be accomplished within the existing PTMS bay and there are not expected to be any necessary changes to the capacity of the cold liquid loop or the hot liquid loop. This work includes nonrecurring engineering for the development, test, and certification of the upgraded PTMS system to ensure suitable cooling is available for future capacities. The Government has assessed that EMD phase would take 5-6 years.</p> <p>Due to the massive leap in cooling and power needed to support post 2029 mission system upgrades on the F-35 the existing PTMS will need to either be massively upgraded or replaced. During multiple iterations of market research, it is clear that industry is capable of manufacturing a TMS that meets the F-35's cooling and power demands. However, it is unclear which system will be best. Therefor during the initial part of the program, the multiple potential solutions will be matured and then the prime integrator will down select to the system that best meets the Government's cost, schedule, and performance needs.</p> <p>FY 2024 Plans: The PTMS Upgrade program will begin nonrecurring engineering effort to increase PTMS Upgrade cooling requirements. This work includes the necessary labor and nonrecurring engineering to support development of the cooling PTMS system and a detailed schedule of EMD to include the necessary operational testing and flight tests.</p> <p>FY 2025 Base Plans: Continue nonrecurring engineering effort to increase PTMS Upgrade cooling requirements and continued maturation of potential Thermal Mangement Systems (TMSs). This work includes the necessary labor and nonrecurring engineering to support development of the cooling PTMS system and a detailed schedule of EMD to include the necessary operational testing and flight tests.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Increase from FY2024 to FY2025 is due to the PTMS Upgrade requirements needed to meet Mission Systems Capabilities.</p>					
Accomplishments/Planned Programs Subtotals	0.000	8.113	13.520	0.000	13.520

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 0358 / Utility and Subsystem Support to Mission Systems

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 0358 / Utility and Subsystem Support to Mission Systems

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0358				
PTMS Upgrade: PTMS Upgrade EMD	2	2027	4	2029
PTMS Upgrade: SoS Engineering PTMS upgrade	2	2024	1	2027
PTMS Upgrade: EMD Contract Award	2	2027	2	2027
PTMS Upgrade: PDR	1	2027	1	2027
PTMS Upgrade: CDR	4	2028	4	2028

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 2567 / Air Vehicle - Technology Refresh 3 (TR-3)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2567: Air Vehicle - Technology Refresh 3 (TR-3)	66.849	62.768	3.023	1.279	-	1.279	1.296	5.359	10.569	10.791	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Air Vehicle - Technology Refresh 3 (TR-3) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for Fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2025 request.

A. Mission Description and Budget Item Justification

Technology Refresh 3 (TR-3) conducts post Critical Design Review (CDR) design activities. This effort will develop and deliver a TR-3 system through full flight-worthy certification and production readiness review. The design of TR-3 subsystems Integrated Core Processor (ICP), Aircraft Memory System (AMS), and Panoramic Cockpit Display Electronics Unit and Display Unit (PCD-EU, PCD-DU) configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary to support Block 3F functionality and incorporation of all Block 4 capabilities. This work includes nonrecurring engineering for the development, test, and certification of the ICP, AMS, PCD-EU, and PCD-DU, and includes processing capacity to ensure long term viability for future capabilities.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Technology Refresh 3 (TR-3)	62.768	3.023	1.279	0.000	1.279
Articles:	-	-	-	-	-
Description: Technology Refresh 3 (TR-3) conducts post Critical Design Review (CDR) design activities. This effort will develop and deliver a TR-3 system through full flight-worthy certification and production readiness review. The design of TR-3 subsystems Integrated Core Processor (ICP), Aircraft Memory System (AMS), and Panoramic Cockpit Display Electronics Unit and Display Unit (PCD-EU, PCD-DU) configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary to support Block 3F functionality and incorporation of all Block 4 capabilities. This work includes nonrecurring engineering for the development, test, and certification of the ICP, AMS, PCD-EU, and PCD-DU, and includes processing capacity to ensure long term viability for future capabilities.					
FY 2024 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2567 / Air Vehicle - Technology Refresh 3 (TR-3)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>The TR-3 program will complete final laboratory system integration and test, flight test, and system certification requirements for fleet fielding.</p> <p>FY 2025 Base Plans: The TR-3 program will complete final laboratory system integration and test, flight test, and system certification requirements for fleet fielding.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease from FY2024 to FY2025 is due to the program nearing completion. This is driven by the ramp down and completion of sub tier supplier scope, and completion of system development at the Prime.</p>					
Accomplishments/Planned Programs Subtotals	62.768	3.023	1.279	0.000	1.279

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

N/A

Remarks

D. Acquisition Strategy

The Technology Refresh-3 program is a delivery order part of a larger F-35 Joint Program Office Basic Ordering Agreement. The acquisition strategy for this delivery order employs a Cost Plus Incentive Fee for engineering and development of the Integrated Core Processor, Panoramic Cockpit Display, and Aircraft Memory System. This eliminates the current Diminishing Manufacturing Source for Technology Refresh-2. Additionally, brings open mission systems standards to the F-35 and enables new Embedded Training and Next Generation Distributed Aperture System capabilities.

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2567 / Air Vehicle - Technology Refresh 3 (TR-3)

	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Proj 2567 Technology Refresh 3 (TR-3)	Perform Final Hardware Qualification Testing ▲																											
	Perform TR-3 Flight Test																											
	Production Hardware Deliveries																											
					Production Software Available																							
									1st Aircraft Lot 15 DD250																			
													TR3 Complete															

2025PB - 0604840M - 2567

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2567 / Air Vehicle - Technology Refresh 3 (TR-3)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2567				
Technology Refresh 3 (TR-3): Perform Final Hardware Qualification Testing	1	2023	1	2023
Technology Refresh 3 (TR-3): Perform TR-3 Flight Test	1	2023	4	2023
Technology Refresh 3 (TR-3): Production Hardware Deliveries	1	2023	2	2024
Technology Refresh 3 (TR-3): Production Software Available	3	2023	2	2024
Technology Refresh 3 (TR-3): 1st Aircraft Lot 15 DD250	2	2024	3	2024
Technology Refresh 3 (TR-3): TR3 Complete	3	2024	4	2024

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 2568 / Air Vehicle Block 4 Planning & Sys Eng			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2568: Air Vehicle Block 4 Planning & Sys Eng	168.878	169.146	177.118	125.447	-	125.447	148.615	97.772	124.044	126.646	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 198												

Note

Beginning in FY2022, Air Vehicle - Block 4 Planning & Sys Eng was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2025 request.

A. Mission Description and Budget Item Justification

The F-35 Air Vehicle Program Management Office (AV PMO) development portfolio includes efforts to improve the F-35 air vehicle lethality, survivability, and interoperability in response to emerging threats outlined in the National Security Strategy and Operational Plans. The AV PMO delivers these capabilities utilizing a Continuous Capability Development and Delivery (C2D2) strategy combining traditional hardware upgrades and agile software integration processes.

F-35 Block 4 Modernization is designed to counter the full spectrum of evolving near-peer enemy threats to ensure US and Allied forces have freedom of operation even in the face of advanced adversary Anti-Access/Area Denial (A2/AD) capabilities. As designed, Block 4 consists of three principle lines of effort: development of software-based capabilities, development and integration of new and modernized aircraft hardware which enable the development of new capabilities, and new weapons integration. Efforts under the Air Vehicle / Block 4 Planning and Systems Engineering project range from requirements decomposition and preliminary design of capabilities through completion of Developmental Flight Test. These activities are a continuation of the previous Block 4 developmental contracts, and include activities required to enable the successful completion of Flight Test, to include select facility upgrades required for research, development, test and evaluation. Block 4 upgraded capabilities and continuous improvements will maintain Air System viability against the evolving threats indicated in the Electronic Warfare Initial Capabilities Document (ICD), the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD). Additionally, the Block 4 capabilities will reduce life cycle cost, improve Air System Integration, and improve operational suitability. Weapons integration efforts included under this project include AARGM-ER integration, employment envelope expansion for current F-35 weapons, and Increased Air-to-Air Missile Carriage.

Included in the Air Vehicle (AV)/Block 4 Planning and Systems Engineering effort is both Prime and Government Systems Engineering Support needed for Avionics/ Electronic Warfare and Weapons Integration efforts to include studies, analysis and risk reduction efforts.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Air Vehicle Planning & Sys Eng	169.146	177.118	125.447	0.000	125.447
Articles:	-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2568 / Air Vehicle Block 4 Planning & Sys Eng

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>Description: The F-35 Air Vehicle Program Management Office (AV PMO) development portfolio includes efforts to improve the F-35 air vehicle lethality, survivability, and interoperability in response to emerging threats outlined in the National Security Strategy and Operational Plans. As designed, Block 4 consists of three principle lines of effort: development of software-based capabilities, development and integration of new and modernized aircraft hardware which enable the development of new capabilities, and new weapons integration. Included in the Air Vehicle (AV)/Block 4 Planning and Systems Engineering effort is both Prime and Government Systems Engineering Support needed for Avionics/Electronic Warfare and Weapons Integration efforts to include studies, analysis and risk reduction efforts.</p> <p>FY 2024 Plans: Continue with Agile development of capabilities through Developmental and Operational Flight Test. Continue requirements decomposition and preliminary design activities for advanced Block 4 capabilities. Continue development and maturity of key long lead capabilities and service unique weapons, enabling A2AD strategies including increased payloads, integrated fires, passive weapons, interoperability and multi-spectrum dominance in response to near-peer threats. Initiate development of enhanced cyber detection and mitigation capability for the F-35 in response to critical and emerging threats. Continue and expand application of cyber resilience engineering processes and tools for software, hardware, and weapons, though flight test. Continue and expand application of cyber resilient engineering processes and tools for software, hardware, and weapons, though flight test. Continuing development and timely delivery of software drops to meet warfighter need. Continue supporting efforts for airframe, air vehicle systems, Air-Ship integration, including Electromagnetic aircraft launch system advanced arresting gear (EMALS-AAG) launch bulletins and related work, mission systems, future capabilities studies and weapons integration efforts. Continue support for Block 4 Capabilities and support preliminary systems engineering efforts associated with AARGM-ER, AGM-158 family of weapons, and increased air-to-air missile carriage. Continued systems engineering, integration, and test (SEIT) development for avionics, sensors, weapons, studies & analyses, and risk reduction efforts.</p> <p>FY 2025 Base Plans: Continue with Agile development of capabilities through Developmental and Operational Flight Test. Continue requirements decomposition and preliminary design activities for advanced Block 4 capabilities. Continue development and maturity of key long lead capabilities and service unique weapons, enabling A2AD strategies including increased payloads, integrated fires, passive weapons, interoperability, and multi-spectrum dominance in response to near-peer threats. Initiate development of enhanced cyber detection and mitigation capability for the F-35 in response to critical and emerging threats. Continue and expand application of cyber resilience</p>					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2568 / Air Vehicle Block 4 Planning & Sys Eng

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>engineering processes and tools for software, hardware, and weapons, through flight test. Continuing development and timely delivery of software drops to meet warfighter need. Continue supporting efforts for airframe, air vehicle systems, Air-Ship integration, including Electromagnetic aircraft launch system advanced arresting gear (EMALS-AAG) launch bulletins and related work, mission systems, future capabilities studies and weapons integration efforts. Continue support for Block 4 Capabilities and advance systems engineering efforts associated with AARGM-ER, AGM-158 family of weapons, and increased air-to-air missile carriage. Continued systems engineering, integration, and test development for avionics, sensors, weapons, studies & analyses, and risk reduction efforts.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The decrease from FY2024 to FY2025 will be managed with FY2024 carryover to meet execution requirements while maintaining F-35 capability development.</p>					
Accomplishments/Planned Programs Subtotals	169.146	177.118	125.447	0.000	125.447

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

N/A

Remarks

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ both Cost and Fixed Price Incentive contracts for the Block 4 engineering and development efforts. A new modernization contract structure will be established for all post SDD Block 4 efforts. In addition, a separate Basic Ordering Agreement or Indefinite Quantity/Indefinite Delivery contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future C2D2 capabilities. FY23 begins systems engineering, integration, and test (SEIT) development.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy											Date: March 2024				
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2					Project (Number/Name) 2568 / Air Vehicle Block 4 Planning & Sys Eng				

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AV Prime LM Phase II Cape/Development	C/CPIF	Lockheed Martin : Ft Worth TX	151.300	138.105	Oct 2022	128.030	Nov 2023	47.000	Nov 2024	-		47.000	121.971	586.406	581.347
AV Prime LM Phase II Fee	C/CPIF	Lockheed Martin : Ft Worth TX	5.122	5.122	Oct 2022	21.300	Nov 2023	3.750	Nov 2024	-		3.750	0.000	35.294	31.544
AV Prime LM Block Four Contract (BFC)	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	0.000		0.000		40.552	Nov 2024	-		40.552	0.000	40.552	-
AV Prime LM Block Four Contract (BFC) Fee	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	0.000		0.000		7.500	Nov 2024	-		7.500	0.000	7.500	-
AV Prime LM Air Vehicle Integration	C/CPFF	Lockheed Martin : Ft Worth TX	1.250	1.250	Oct 2022	1.563	Nov 2023	1.574	Nov 2024	-		1.574	1.024	6.661	5.087
AV Systems Engineering	Various	Various : Various	3.191	4.312	Dec 2022	5.883	Nov 2023	5.481	Nov 2024	-		5.481	7.410	26.277	20.796
AV Cyber Survivability	Various	Various : Various	0.000	4.917	Dec 2022	9.322	Nov 2023	8.670	Nov 2024	-		8.670	32.500	55.409	46.739
Subtotal			160.863	153.706		166.098		114.527		-		114.527	162.905	758.099	N/A

Remarks
 1. Breaking out the Prime LM Block Four Contract (BFC) lines starting in FY2025. This is not a new start and is captured under the Ph II Cape/Development line prior to FY2025.

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AV Mission Systems Support	Various	Various : Various	5.265	3.940	Nov 2022	5.009	Nov 2023	4.730	Nov 2024	-		4.730	0.000	18.944	22.564
AV Vehicle Systems Support	Various	Various : Various	0.250	8.500	Nov 2022	2.250	Nov 2023	2.480	Nov 2024	-		2.480	0.000	13.480	13.500
AV CSO Development Support	Various	Various : Various	2.500	3.000	Nov 2022	3.761	Nov 2023	3.710	Nov 2024	-		3.710	Continuing	Continuing	Continuing
Subtotal			8.015	15.440		11.020		10.920		-		10.920	Continuing	Continuing	N/A

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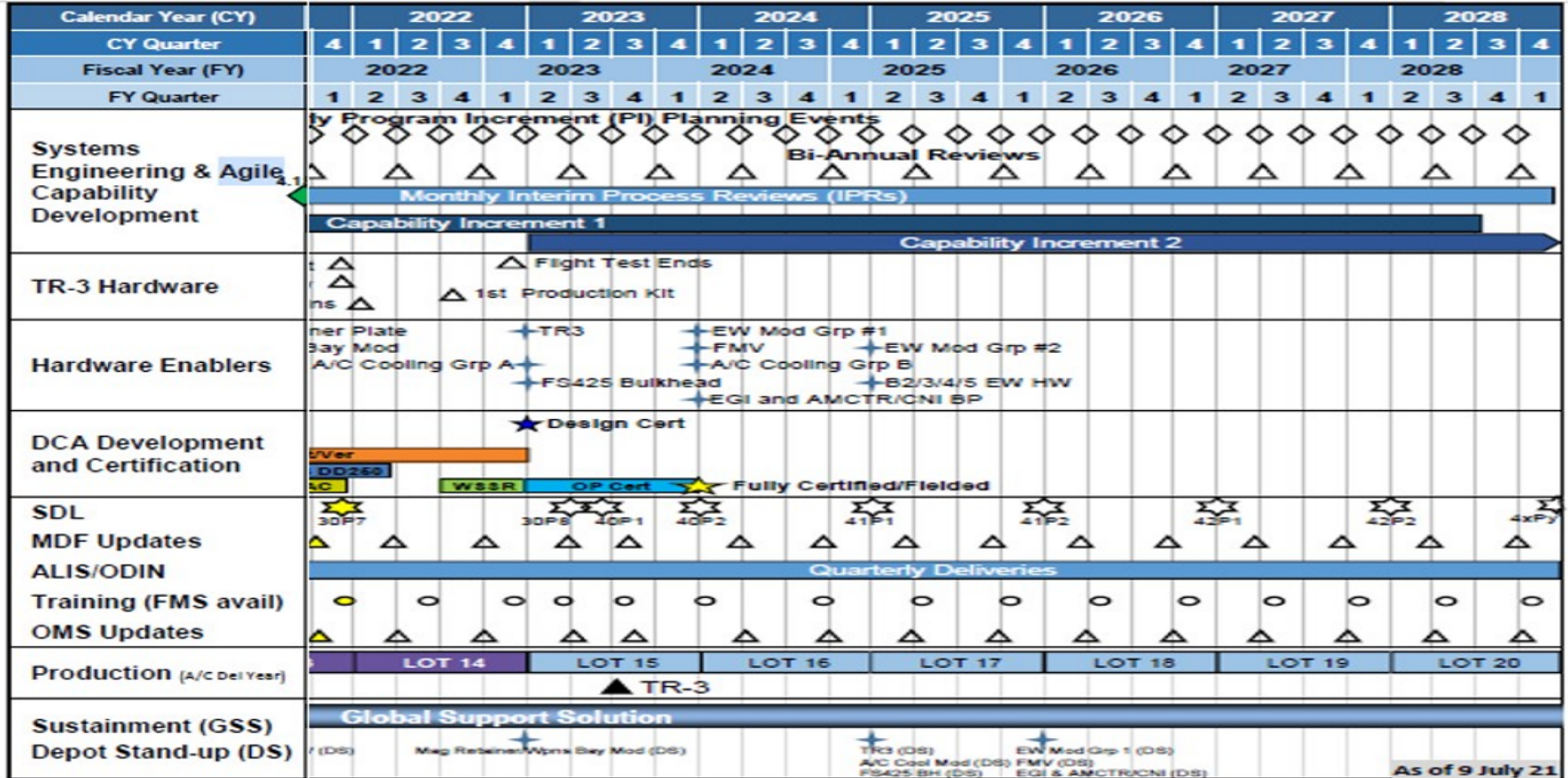
Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy

Date: March 2024

Appropriation/Budget Activity
1319 / 7

R-1 Program Element (Number/Name)
PE 0604840M / F-35B C2D2

Project (Number/Name)
2568 / Air Vehicle Block 4 Planning & Sys Eng



As of 9 July 21

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2568 / Air Vehicle Block 4 Planning & Sys Eng

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2568				
Systems Engineering & Agile Capability Development: Planning Events	1	2023	4	2029
Systems Engineering & Agile Capability Development: IPRs	1	2023	4	2029
Hardware Enablers: A/C Cooling	1	2023	4	2025
Hardware Enablers: Electronic Warfare (EW) Upgrade	1	2023	1	2028
Hardware Enablers: Embedded GPS Inertial (EGI)	1	2023	1	2027
Hardware Enablers: Beyond Line Of Sight (BLOS) Communications	4	2023	4	2029
Production: LOT 15	2	2023	1	2024
Production: LOT 16	2	2024	1	2025
Production: LOT 17	2	2025	1	2026
Production: LOT 18	2	2026	1	2027
Production: LOT 19	2	2027	1	2028
Production: LOT 20	2	2028	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2569: Test and Evaluation (T&E)	120.365	112.755	132.946	138.904	-	138.904	140.480	125.541	111.628	94.121	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Test and Evaluation (T&E) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2025 request.

A. Mission Description and Budget Item Justification

Integrated Test activities in support of C2D2, to include Lockheed Martin support at all test sites. Non-recurring engineering required to plan for the service life extension of existing DT aircraft and modifications necessary to bring DT aircraft fleet to a more production-representative and sustainable configuration, and to develop flight test instrumentation and release test software to meet Block 4 requirements. Additional upgrades required to support development and evaluation of improvements driven by changes in the threat environment and as identified in the Electronic Warfare ICD, the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD). Efforts include non-recurring engineering and procurement of a test article to evaluate service life of F-35B STOVL Aircraft. Integrated test also supports the evaluation of upgrades to ALIS, fielding of ODIN Base Kits, regression testing of fielded weapons upgrades, and various validation/verification efforts.

Costs in the Accomplishments/Planned and Program R2A section have been broken out into the following R-2A categories: Development Foundation Contract, Development Test, Operational Test, Future Flight Test Capabilities/Investments, Ground Test and Simulation Infrastructure. All of the development efforts presented in the budget submission existed in prior years and were rolled up under previously submitted Accomplishments/Planned and Program costs in Test and Evaluation category.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Development Foundation Contract (DFC) Flight Test and Tech Refresh	37.615	41.635	38.466	0.000	38.466
Articles:	-	-	-	-	-
Description: Flight test infrastructure at Edwards Air Force Base (AFB) and Pax River Naval Air Station (NAS) and F-35 tech refresh for laboratory development at Fort Worth, TX for Lockheed Martin Aeronautics and its subcontractors (LM Aero). This includes investment planning and other test planning activities required for Block 4 development, integration, developmental test and evaluation. Funding is required for the Lockheed Martin Integrated Test Force contractor labor, suppliers, and material. Other support efforts are provided for airframe, air vehicle systems, air-ship integration, mission systems, weapons integration, offboard mission					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>support, autonomic logistics development, joint reprogramming enterprise and modeling and joint simulation environment activities, including Nimble Lightning efforts. Other costs in support of ranges, chase planes and DT site operations.</p> <p>FY 2024 Plans: Support F-35 capability enhancements. DFC will provide flight test for C2D2 Block 4 capabilities including weapons testing, as well as continue annualized equipment recapitalization along with technology refresh and specific lab modernization efforts. These efforts will sustain, replace, upgrade, and modify hardware and software.</p> <p>FY 2025 Base Plans: DFC will provide flight test support for C2D2 Block 4 capabilities and weapons testing to accelerate delivery of weapons to the Services. Continues annualized equipment recapitalization of ground support equipment along with technology refresh and specific lab modernization efforts. These efforts will sustain, replace, upgrade, and modify test infrastructure hardware and software.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease for DFC in FY2025 will be managed within the portfolio cost share.</p>					
<p>Title: Developmental Test (DT)</p> <p align="right">Articles:</p> <p>Description: Government test site Integrated Test activities to support development of Air Vehicle C2D2 and TR-3 programs, as well as inherent maintenance systems, training systems, and combat data systems test support. Testing includes ground, logistics, and flight testing of incremental flight software releases, weapon integration, DMS/ fleet sustainment, service-life extension, hardware refresh, and regression efforts to ensure total system integration meets program requirements. Test site capabilities to meet program requirements include infrastructure, ranges, engineering, administration, logistics, maintenance, controls, information technologies, classified facilities, and service unique</p>	17.922	19.120	23.274	0.000	23.274
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>supporting capabilities. The sites to be funded include but are not limited to NAWCAD Pax River, NAWCWD China Lake, and Edwards AFB.</p> <p>FY 2024 Plans: Continue to support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes Block 4 weapons integration, integrated system evaluations, multi-ship operations, and mission effectiveness evaluations. Continued funding for Development Test Aircraft Modification broken out from the rest of the Development activities. This is continued support from FY22 for Developmental Test (DT) aircraft modifications in order to be test-ready and operationally-representative. Funding will also procure Developmental Test (DT) Kits. Continuing to support flight test capacity and flight test execution. This includes first increment testing through initial and fully operational increments. The funding will be used for continuing to develop and test incrementally, for new software releases and deficiency fixes.</p> <p>FY 2025 Base Plans: Developmental Testing activities at NAS Patuxent River ("Pax"), Edwards AFB, and NAWS China Lake continue FY24 activities under a level-of-effort test capacity as defined in updated USN Work Assignment Agreements (WAAs) and USAF Statements of Capability (SOCs). DT efforts in FY25 are expected to be prioritized for continued US Services and Cooperative Partner nation weapons integration and other operational air system capabilities, but will also include other efforts as described for FY24.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding increase for DT in FY2025 to improve ability for F-35 Integrated Test Forces (ITFs) at NAS Patuxent River and Edwards AFB to complete DT activities for F-35 common capabilities, mission systems, and weapons capabilities, necessary to reach maturity required to field the warfighter.</p>					
<p>Title: Operational Test (OT)</p> <p align="right">Articles:</p> <p>Description: Government test site Integrated Test activities to support development of Air Vehicle C2D2 and TR-3 programs, as well as inherent maintenance systems, training systems, and combat data systems test support. Testing includes ground, logistics, and flight-testing of incremental flight software releases, weapon integration, DMS/fleet sustainment, hardware refresh and regression efforts to ensure total system integration</p>	8.712	15.802	9.798	0.000	9.798
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>meets program requirements in an operationally representative environment. Test site capabilities to meet program requirements include infrastructure, ranges, engineering, administration, logistics; maintenance, controls, information technologies, classified facilitates, and service unique supporting capabilities. The sites to be funded include but are not limited to Nellis AFB and Yuma Air Station.</p> <p>FY 2024 Plans: Funding will support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes TR-3 integration, Block 4 weapons integration, integrated system evaluations, multi-ship operations and mission effectiveness evaluations in an operationally representative environment. Continued funding for Operational Test (OT) aircraft modifications in order to be test-ready and operationally-representative. The funding will be used for continual to development through incremental test of new software and deficiency fixes. Funding also includes the execution of the remaining 64 OT virtual mission trials and IOT&E close out tasks. AV is the TR-3 system owner responsible for verifying capability (per their funding in PU 2567) with data provided from DT and OT funded in this chart.</p> <p>FY 2025 Base Plans: Operational Test activities will continue from FY24 into FY25 under a level-of-effort OT capacity as defined in the Integrated Test Team (ITT) charter and as required to support the C2D2 construct's incremental capability releases. These activities may include OT squadron participation in large force fleet-representative exercises or joint force exercises to stress the capabilities in an operational environment. Funding will also be used to continue refining and improving OT data analysis tools and OT data management.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease for OT in FY2025 is due to reducing overall flight test execution at Nellis AFB and Edwards AFB.</p>					
<p>Title: Future Flight Test Capabilities/Investments</p> <p align="right">Articles:</p> <p>Description: Test fleet modifications, test mission equipment/assets, instrumentation capability, and data center investments are required to continue to support Block 4 capability development and integrated test requirements. TR-3 related capability requires current test aircraft and replacement test aircraft configurations to be modified to new hardware, software, and instrumentation systems. Program priorities, flight test demand, data quantity/</p>	42.715	52.916	61.639	0.000	61.639
	-	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

bandwidth upgrades, and capability delivery schedules require a steady update to test fleet configurations. Modifications and instrumentation design/procurement/install are long-lead efforts requiring stable funding and contract vehicles to meet program needs.

FY 2024 Plans:

Begin incremental funding for Flight Sciences Replacements jets FTI design, procurement and installation (1 per variant). Begin incremental funding for Flight Science Lite jets for FTI design in support of weapons testing (1xF-35B and 2xF-35C). Continues FTI design/fabrication/installation (long-lead NRE, parts procurement, kit fabrication) for replacement test aircraft (16x unique designs). Continues NRE/procurement/installation to retrofit or maintain test aircraft viability. Additionally, development, procurement, and installation of flight test data center system upgrades to support Integrated Testing across multiple F-35 stakeholder sites. FTI development, procurement, fabrication, and installation for current/future service loaner aircraft in order to continue Integrated Testing with Service Operational Test organizations. Further, continue integration and procurement efforts for required Block 4 test mission assets, includes but not limited to weapons test vehicles, unique test mission equipment, and other test execution support equipment.

FY 2025 Base Plans:

Continue incrementally funding Flight Science Replacement jets FTI design, procurement, and installation (1 per variant). Complete incremental funding for Flight Science Lite jets for FTI design in support of weapons testing (1xF-35B and 2xF-35 C). Continues FTI design/fabrication/installation (long-lead NRE, parts procurement, kit fabrication) for replacement test aircraft (multiple unique designs). Continues NRE/procurement/installation to retrofit or maintain test aircraft viability. Development, procurement, and installation of flight test data center upgrades to support Integrated Testing across multiple F-35 stakeholder sites. FTI development, procurement, fabrication and installation or current and future service loaner aircraft to continue Integrated Testing with Service Operational Test organizations. Continue integration and procurement efforts required for Block 4 test mission assets.

FY 2025 OCO Plans:

N/A

FY 2024 to FY 2025 Increase/Decrease Statement:

Funding increase for FTI in FY2025 is primarily due to the request for additional 6x Flight Science Aircraft in support of engine and Block 4 development testing. This will increase the capacity to complete engineering and long-lead parts for Flight Science Aircraft.

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Ground Test and Simulation Infrastructure (GTSI)	5.791	3.473	5.727	0.000	5.727

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p align="right"><i>Articles:</i></p> <p>Description: Development of Ground Test & Simulation Infrastructure capabilities from Block 4/TR-3 and other C2D2 early-on design and development through Installed Systems Verification activities prior to Developmental Flight Test for all variants of the F-35 aircraft. Infrastructure efforts include Laboratory Developments of Improvements & Modernization (I&M) assets used for design, development and test of Block 4 capabilities, and development of Ground Test & Evaluation Capabilities for digital and non-digital installed systems verification. Laboratory and/or Venue Developments will focus on the pure development of Block 4 capabilities through a Capability Verification Infrastructure that meets required fidelities that would advance the high-quality development of the Air System capabilities. Ground Test & Simulation Infrastructure will also include capabilities for cyber testing for TR-3 assessments within three main areas: air vehicle, information systems, and supply chain.</p> <p>FY 2024 Plans: Continue Ground Test & Simulation Infrastructure improvements and modernization capabilities needed for Block 4 air system developments. Efforts required to enable efficiencies in the Capability Verification process and decrease reliance on Flight Test Operations as the overwhelmingly sole means of Verification. Test Infrastructure improvements include Vendor lab capabilities as well as USG Organic Infrastructure. Develop F-35 mission threads for continued digital verification automated capabilities for early-on software development, and continue aircraft cyber improvements and testing efforts. Major Investments include improvements to Digital Capabilities and Analysis and Ground Integrated Battlespace Verification.</p> <p>FY 2025 Base Plans: Continue Ground Test and Simulation Infrastructure Improvements and Modifications (I&M), M&S accreditation for DT, and test operation efforts that enable T&E of F-35 Blk4 Air System Capabilities. I&M efforts will be made to both DoD Organic Infrastructure such as integrated battlespace testing improvements to the anechoic chamber and associated labs, and LM lab infrastructure needed for Block 4 air system capability development. LM I&M efforts include updates to simulation software, improvements to stimulation labs, test equipment procurement, and engineering and test operations in support of EW, radar, communications, and weapon capabilities. Budget will also cover prime contractor support for the execution of M&S accreditation activities for DT, as well as activities for Government and CSS support needed for planning and reporting on the verification and validation of M&S to enable the use of M&S as capability verification venue.</p> <p>FY 2025 OCO Plans:</p>	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy	Date: March 2024
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
N/A					
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> Funding increase for GTSI in FY2025 to increase support of Block 4 capability development, as well as procure hardware and engineering labor for laboratory infrastructure improvements.					
Accomplishments/Planned Programs Subtotals	112.755	132.946	138.904	0.000	138.904

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

N/A

Remarks

D. Acquisition Strategy

The Test & Evaluation Project Unit will maximize use of existing F-35 contracts, where possible, for the various T&E-related capabilities and investments outlined in Sections A-C above. For example, provisions for new instrumentation on new flight test aircraft are being implemented when applicable via existing Production contracts in order to allow installation of the required hardware while those airframes are still on the assembly line. This will save significant costs and effort that would be required if instrumentation installation occurred after aircraft delivery. Other modifications and/or non-recurring engineering (NRE) may be implemented via existing contracts being managed by the Air Vehicle Program Management Office as part of the Block 4 engineering and development efforts. In addition, a separate Cost-Plus-Incentive-Fee-type contract is planned to provide a long-term approach to upgrading and maintaining laboratories and also for maintaining the older existing SDD test aircraft. Viability modifications to the SDD test aircraft are being contracted via a combination of Streamlined Delivery Orders for NRE and hardware as well as a Cost Plus-type contract, using both to expedite the right modifications as needed at the right time in order to avoid test aircraft grounding and to maximize their availability. In addition, separate Basic Ordering Agreements or Indefinite Quantity/Indefinite Delivery contracts may be used to implement a long-term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future capabilities. Several new cost reduction initiatives are being studied to determine possible migration away from Lockheed-Martin support to less-expensive organic support (via either government solutions, local test-base support contracts, or a combination of both) in areas such as test aircraft maintenance, test operations support, and networks/knowledge management. Other initiatives are being pursued to move more test data collection requirements from the open-air ranges to ground test chambers, computer-based models and simulations, or other laboratory venues where possible.

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DFC - Prime LM Developmental Foundation Contract	C/CPIF	Lockheed Martin : Ft. Worth, TX	40.454	37.531	Nov 2022	36.728	Nov 2023	38.392	Nov 2024	-		38.392	184.640	337.745	302.851
OT - Prime LM Operation Test Aircraft Modification	C/CPIF	Lockheed Martin : Ft. Worth, TX	1.163	1.646	Jun 2023	9.286	Aug 2024	5.319	Aug 2025	-		5.319	8.941	26.355	21.190
FI - Prime LM DT AC Viability	C/CPIF	Lockheed Martin : Ft. Worth, TX	12.000	11.835	Dec 2022	40.351	Dec 2023	5.880	Dec 2024	-		5.880	17.414	87.480	82.703
FI - Flight Test Asset	C/CPFF	Lockheed Martin : Ft. Worth, TX	24.187	23.052	Dec 2022	10.885	Dec 2023	54.448	Dec 2024	-		54.448	22.741	135.313	83.014
DT - Prime LM Development Test Aircraft Modification	C/CPIF	Lockheed Martin : Ft. Worth, TX	1.000	3.910	Dec 2022	2.204	Aug 2024	1.802	Aug 2025	-		1.802	9.941	18.857	17.420
Laboratory Developments	C/CPIF	Lockheed Martin : Ft. Worth, TX	0.000	0.000		4.907	Nov 2023	0.000	Nov 2024	-		0.000	0.000	4.907	4.907
Subtotal			78.804	77.974		104.361		105.841		-		105.841	243.677	610.657	N/A

Remarks
R-3 Acronyms correspond to R-2A categories, per below breakout:
DFC - Development Foundation Contract (DFC) Flight Test
OT - Operational Test
DT - Developmental Test
FI - Future Flight Test Capabilities and Investments
GTS - Ground Test Simulation and Infrastructure

Flight Test assets include DT and OT weapons procurement to support Test and assets needed for flight test instrumentation

Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation (DT&E)	MIPR	Edwards AFB : Edwards AFB, CA	8.630	7.222	Dec 2022	7.960	Dec 2023	12.457	Dec 2024	-		12.457	16.390	52.659	42.037
Developmental Test & Evaluation (DT&E)	MIPR	IDT : Ballston, VA	0.410	0.343	Dec 2022	0.766	Dec 2023	0.924	Dec 2024	-		0.924	1.639	4.082	3.246

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)
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F-35 Block 4 Integrated T&E Schedule *(upd. 06/21/23)*

Calendar Year	CY 22				CY 23				CY 24				CY 25				CY 26				CY 27				CY 28				
	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	
Fiscal Year	FY 22				FY 23				FY 24				FY 25				FY 26				FY 27				FY 28				FY 29
Quarter	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	2ND	3RD	4TH	1ST	
Production	★ LOT 14 DELIVERY (Qty 157)				★ LOT 15 DELIVERY (Qty 148)				★ LOT 16 DELIVERY (Qty 139)				★ LOT 17 DELIVERY (Qty 128)				★ LOT 18 DELIVERY (Qty TBD)				★ LOT 19 DELIVERY (Qty TBD)				★ LOT 20 DELIVERY (Qty TBD)				
Acquisition Milestones	IOT&E (SDD)								MS C / Full Rate Production Decision Date TBD																				
	FOT&E (Block 4)																												
Engineering/ T&E Contracts	Block 4 Phase 2.3 Development				Block Four Contract (BFC) Development Contract																								
					TR3 Development																								
	DFC II				Development Foundation Part III																								
	DT Viability																												
	Flight Test Instrumentation (Lot 14 and beyond)																												
OFP Development & Test Flight Test = DT + IT	Future Software TBD (F-35 TEMP Annex 4 and following)																												

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2569 / Test and Evaluation (T&E)
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2569				
Development Foundation Contract	1	2023	2	2027
DT Aircraft Viability	1	2023	1	2026
Flight Test Instrumentation	1	2023	4	2028
Block 4 Contract Lab Development	1	2023	1	2026
OFP Development & Test	1	2023	2	2026

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 2570 / Propulsion (PP)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2570: Propulsion (PP)	14.541	22.160	130.251	124.664	-	124.664	103.954	107.958	98.316	100.380	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Propulsion (PP) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. This Project Unit includes continued efforts from Project Unit 3410 prior years. This Project Unit has been updated to reflect the directed project categories to provide traceability between current execution and future requests.

A. Mission Description and Budget Item Justification

Propulsion F135 projects within the Continuous Capability Development & Delivery (C2D2) are provided for developmental efforts for propulsion systems and test engine requirements such as Block 4 Integrated Flight Test Support, Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component, and capability development, prototypes, various studies, costs integral to support the developmental stages for F-35 engine modernization, affordability drivers for top engine availability degraders, and improvement to support the F135 Propulsion System for the F-35 Air Vehicle. Testing and development of the three F-35 aircraft variants require engine propulsion funding to enable continued flight hours. Flight hours are budgeted and planned to meet the Block 4 Flight Test timelines, and required Flight Test support. Flight Test Support efforts will transition to Organic support by CY2027. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, replacement of development-only hardware, and updating Joint Technical Data (JTD) packages as required. The F-35 engine is being modernized as part of the Engine, Power, and Thermal Management System (PTMS) Modernization (EPM) subprogram. In FY24, Engine Modernization began being funded through the standard funding process. EPM Engine Modernization will continue funding propulsion system EMD in FY2025. In FY24 EPM began funding the Power and Thermal Management Upgrade, an upgrade to the F-35 Air System's (AS) Power and Thermal Management System (PTMS), Fuel Thermal Management System (FTMS) and Electrical Power System (EPS).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Propulsion (PP)	22.160	130.251	124.664	0.000	124.664
Articles:	-	-	-	-	-
Description: Propulsion F135 projects within the Continuous Capability Development & Delivery (C2D2) are provided for developmental efforts for propulsion systems and test engine requirements such as Block 4 Integrated Flight Test Support, Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component, and capability development, prototypes, various studies, costs integral to support the developmental stages for F-35 engine modernization, affordability drivers for top engine availability degraders, and improvement to support the F135 Propulsion System for the F-35 Air Vehicle. Testing					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2570 / Propulsion (PP)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>and development of the three F-35 aircraft variants require engine propulsion funding to enable continued flight hours. Flight hours are budgeted and planned to meet the Block 4 Flight Test timelines, and required Flight Test support. Flight Test Support efforts will transition to Organic support by CY2027. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, replacement of development-only hardware, and updating Joint Technical Data (JTD) packages as required. The F-35 engine is being modernized as part of the Engine, Power, and Thermal Management System (PTMS) Modernization (EPM) subprogram. In FY24, Engine Modernization began being funded through the standard funding process. EPM Engine Modernization will continue funding propulsion system EMD in FY2025. In FY24 EPM began funding the Power and Thermal Management Upgrade, an upgrade to the F-35 Air System's (AS) Power and Thermal Management System (PTMS), Fuel Thermal Management System (FTMS) and Electrical Power System (EPS).</p> <p>FY 2024 Plans: Continued Propulsion F135 Block 4 Integrated Flight Test Support to include Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for engine modernization and improvement to support the F135 Air Vehicle. Propulsion Flight Test Support enables the execution of F135 Air Vehicle Air System Playbook (ASP 16.1), and Technology Refresh 3 (TR3) Requirements. The Flight Test Fleet will maintain similar elevated aircraft inventory at twelve aircraft in FY2024. This includes seven at Edwards Air Force Base and five at Patuxent River Naval Air Base. Flights and Engine Flight Hours (EFH) are expected to maintain their prior year levels at 240 flights and 480 flight hours per quarter. Flight Test Support efforts will transition to Organic support by FY2027. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. FY2024 Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts, Engine signature predicting improvement efforts, and continuing F135 Engine Modernization/Propulsion System Upgrade developmental efforts.</p> <p>FY 2025 Base Plans: Continued Propulsion F135 Block 4 Integrated Flight Test Support to include Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component, and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for engine modernization and improvement to support the F135 Air Vehicle. Propulsion</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2570 / Propulsion (PP)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>Flight Test Support enables the execution of Block 4 and Technology Refresh 3 (TR3) Requirements. The Flight Test Fleet will maintain similar aircraft inventory at eight aircraft in FY2025. This includes three at Edwards Air Force Base and five at Patuxent River Naval Air Base. Flights and Engine Flight Hours (EFH) are expected to maintain their prior year levels at over 600 flight hours in the year. Flight Test Support efforts will transition to Organic support by the end of CY2027. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, replacement of development-only hardware, and updating Joint Technical Data (JTD) packages as required. FY2025 Propulsion provides funding for requirements to support Engine Modernization Development efforts. PTMU will continue nonrecurring engineering effort to further understand SoS impacts and PTMS Upgrade cooling requirements and continued maturation of potential Thermal Management Systems (TMSs.)</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease from FY2024 to FY2025 is due to continual requirements development relating to maturation efforts for the F135 Engine Modernization/propulsion System Upgrade developmental efforts.</p>					
Accomplishments/Planned Programs Subtotals	22.160	130.251	124.664	0.000	124.664

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

N/A

Remarks

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ both Cost and Fixed Price Incentive contracts for the Block 4 engineering and development efforts. A new modernization contract structure will be established for all post SDD Block 4 efforts. In addition, a separate Basic Ordering Agreement or Indefinite Quantity/Indefinite Delivery contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future C2D2 capabilities.

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2570 / Propulsion (PP)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PP Prime PW C2D2 Propulsion DT Aircraft Procurement Engines	C/FPIF	Pratt & Whitney : East Hartford, Connecticut	5.870	0.500	Nov 2022	0.000		0.000		-		0.000	0.000	6.370	6.370
PP Prime PW C2D2 Propulsion Flight Test	C/CPIF	Pratt & Whitney : East Hartford, Connecticut	6.767	5.629	Oct 2022	7.200	Oct 2023	7.200	Oct 2024	-		7.200	5.469	32.265	25.341
PP DevSecOps Emulation Lab	C/CPIF	Pratt & Whitney : East Hartford, Connecticut	1.229	0.000		0.000		0.000		-		0.000	0.000	1.229	1.229
PP F135 Engine Modernization Development	Various	Various : Various	0.572	0.736	Oct 2022	70.881	Jun 2024	65.294	Jun 2025	-		65.294	0.000	137.483	72.189
PP F135 Engine Modernization Detailed Design	TBD	TBD : TBD	0.000	0.000		50.000	Dec 2023	50.000	Dec 2024	-		50.000	0.000	100.000	50.000
Subtotal			14.438	6.865		128.081		122.494		-		122.494	5.469	277.347	N/A

Remarks
PP F135 Engine Modernization Development reduced in FY2025 as cost estimates and expectations are being matured without affecting propulsion/engine modernization costs to our prime vendor on cost element PP F135 Engine Modernization Detailed Design.

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PP Program Management Support	Various	Various : Various	0.103	0.295	Nov 2022	2.170	Jan 2024	2.170	Jan 2025	-		2.170	Continuing	Continuing	Continuing
PP FOD Efforts	Various	varous : various	0.000	15.000	Aug 2023	0.000		0.000		-		0.000	0.000	15.000	-
Subtotal			0.103	15.295		2.170		2.170		-		2.170	Continuing	Continuing	N/A

Remarks
Added Foreign Object Damage (FOD) cost category to support the incoming funding of this effort in August of 2023. This effort transitioned to JSF from PMA 260. This is the first opportunity to align this effort for budgeting purposes

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2570 / Propulsion (PP)
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Proj 2570	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Propulsion (PP)	P&W Flight Test																															
	2 DT Engine Purchase Inc 3																															
	1 Flight Test DT Engine Purchase																															
	DevSecOps Emulation Lab for FADEC																															
	F135 Engine Modernization																															
	Engine Signature Predictor (ESP)																															

2025PB - 0604840M - 2570

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2570 / Propulsion (PP)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2570				
Propulsion (PP): P&W Flight Test	1	2023	4	2026
Propulsion (PP): 2 DT Engine Purchase Inc 3	1	2023	4	2023
Propulsion (PP): 1 Flight Test DT Engine Purchase	1	2023	4	2023
Propulsion (PP): DevSecOps Emulation Lab for FADEC	1	2023	4	2023
Propulsion (PP): F135 Engine Modernization	1	2023	4	2029
Propulsion (PP): Engine Signature Predictor (ESP)	1	2023	4	2025

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 2571 / Maintenance Systems (MxS)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2571: Maintenance Systems (MxS)	21.937	24.005	18.106	11.030	-	11.030	17.865	16.065	14.453	14.756	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 198												

Note
Beginning in FY2022, Maintenance Systems (MxS) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2025 request.

A. Mission Description and Budget Item Justification

Autonomic Logistics Information System (ALIS) is the current F-35 program solution for delivering core maintenance and logistics information solutions to F-35 warfighters. ALIS will continue to deliver the core logistics and maintenance infrastructure requirements for the F-35 enterprise as ALIS evolves into Operational Data Integrated Network (ODIN). ALIS includes features such as aircraft scheduling, training delivery, record keeping, technical data delivery, supply chain management, maintenance management, pilot and maintenance debriefing, and mission planning. Current ALIS development efforts are focused on low cost and high return investments that provide a high confidence return on investment in the short term, significant warfighter impact, and/or offer synergy with ODIN development efforts.

ODIN will incrementally provide a modern, user-friendly integrated information system for the F-35 to deliver core maintenance and logistics information solutions. ODIN will be comprised of multiple elements to include modern hardware, architectures, software development methods, data environments, and platforms. Leveraging agile and modern software development practices, ODIN will serve as the primary logistics tool to support F-35 warfighter operations, health and diagnostics, mission planning, supply chain management, maintenance, and training. ODIN will substantially decrease F-35 administrator and maintainer workload, increase readiness rates for all F-35 variants, and allow software engineers to rapidly develop and deploy updates in response to changing warfighter requirements and improve data management, quality, and integrity. The ALIS to ODIN transition is intended to enable holistic fleet management, improve performance, enhance readiness, and reduce costs to the F-35 program. ODIN is comprised of both hardware and software which support the flow of Unclassified and Classified aircraft and maintenance-related data.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Operational Data Integrated Network (ODIN)	23.505	18.106	11.030	0.000	11.030
Articles:	-	-	-	-	-
Description: ODIN will incrementally provide a modern, user-friendly integrated information system for the F-35 to deliver core maintenance and logistics information solutions. ODIN will be comprised of multiple elements to include modern hardware, architectures, software development methods, data environments, and platforms.					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy	Date: March 2024
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2571 / Maintenance Systems (MxS)
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

Leveraging agile and modern software development practices, ODIN will serve as the primary logistics tool to support F-35 warfighter operations, health and diagnostics, mission planning, supply chain management, maintenance, and training. ODIN will substantially decrease F-35 administrator and maintainer workload, increase readiness rates for all F-35 variants, and allow software engineers to rapidly develop and deploy updates in response to changing warfighter requirements and improve data management, quality, and integrity. The ALIS to ODIN transition is intended to enable holistic fleet management, improve performance, enhance readiness, and reduce costs to the F-35 program. ODIN is comprised of both hardware and software which support the flow of Unclassified and Classified aircraft and maintenance-related data.

FY 2024 Plans:

Continue ALIS to ODIN software containerization efforts and development of foundational infrastructure for software and data modernization to increase user capability. Continue development of the Linux platform and ODIN data architecture. Finalize current generation hardware update. Continue analysis of alternatives on next-generational hardware tech insertion supporting ODIN development and test plan as well as capability requirements that are not currently encompassed in the baseline equipment. Optimize the ODIN cloud-based infrastructure while continuing migration and modernization of the ODIN enterprise. Leverage the establishment of modern software architecture from Unclassified development efforts to develop and release the Classified portion of the F-35 Maintenance Systems ODIN enterprise. Develop and deploy improved capabilities to replace legacy applications.

FY 2025 Base Plans:

Continue ALIS to ODIN software containerization efforts and development of foundational infrastructure, software, and data enhancements to enable enterprise-wide capabilities and increase user capabilities. Continue development of the Linux platform and ODIN data architecture. Develop next-generation hardware update. Continue analysis of alternatives on future hardware tech insertion supporting ODIN development and test plans as well as capability requirements that are not currently encompassed in the baseline equipment. Continue development and optimization of the ODIN cloud-based infrastructure while continuing migration and enhancement of the ODIN enterprise. Leverage the establishment of modern software architecture from Unclassified development efforts to develop and release the Classified portion of the F-35 Maintenance Systems ODIN enterprise. Develop and deploy improved capabilities to replace legacy applications.

FY 2025 OCO Plans:

N/A

FY 2024 to FY 2025 Increase/Decrease Statement:

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy	Date: March 2024
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2571 / Maintenance Systems (MxS)
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Decrease in USMC funding from FY2024 to FY2025 is primarily for Software and Data activities and resulted from lower negotiated Lockheed Martin labor rates on the prime development contract. The activities have been adjusted to more closely align to planned migration activities with ODIN containerized software.					
<p>Title: Prognostics and Health Management (PHM)</p> <p align="right">Articles:</p> <p>Description: Prognostics and Health Management (PHM) encompasses the Air-System set of software, technical data and capabilities to enable optimal maintenance, and resolution of aircraft failures and impending failures. On-aircraft software identifies failures, enables reporting of status to the pilot, and records data for life cycle management and sustaining engineering. The data processed by ALIS/ODIN supports maintenance debriefs, life cycle management via Assess Material Condition (AMC), and failure resolution via Health Reporting Codes (HRCs) and Anomaly and Failure Resolution System (AFRS). Maintenance performance (inclusive of reliability and maintainability) is enhanced via the collection and reporting of the Failure Reporting and Corrective Action System (FRACAS). Applied advanced analytics on the aggregate PHM is used for airframe lifting and enterprise use, and improves responsiveness to operational needs.</p> <p>FY 2024 Plans: N/A</p> <p>FY 2025 Base Plans: N/A</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: N/A</p>	0.500	0.000	0.000	0.000	0.000
	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	24.005	18.106	11.030	0.000	11.030

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

N/A

Remarks

D. Acquisition Strategy

N/A

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2571 / Maintenance Systems (MxS)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MxS Prime LM ODIN	C/CPFF	Lockheed Martin : FT. Worth, TX	15.206	11.996	Nov 2022	8.601	Nov 2023	4.939	Nov 2024	-		4.939	36.012	76.754	79.610
MxS Prime PW ODIN	C/CPFF	Pratt Whitney : East Hartford, Connecticut	0.985	2.466	Nov 2022	1.900	Nov 2023	1.386	Nov 2024	-		1.386	2.211	8.948	5.917
MxS Prime LM PHM	C/CPFF	Lockheed Martin : FT. Worth, TX	0.950	0.500	Nov 2022	0.000		0.000		-		0.000	0.000	1.450	1.450
Subtotal			17.141	14.962		10.501		6.325		-		6.325	38.223	87.152	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MxS ODIN Development Support	Various	Various : Not Specified	4.796	9.043	Nov 2022	7.605	Nov 2023	0.734	Nov 2024	-		0.734	Continuing	Continuing	Continuing
MxS ODIN Development Support - Platform Environment	Various	Various : Not Specified	0.000	0.000		0.000		1.515	Nov 2024	-		1.515	0.000	1.515	-
MxS ODIN Development Support - KBR (DTIC)	Various	DTIC : Fort Belvoir, VA	0.000	0.000		0.000		1.199	Nov 2024	-		1.199	0.000	1.199	-
MxS ODIN Development Support - GFE	Various	Various : Various	0.000	0.000		0.000		0.795	Nov 2024	-		0.795	0.000	0.795	-
MxS ODIN Development Support - NIWC	Various	NIWC : Charleston, SC	0.000	0.000		0.000		0.462	Nov 2024	-		0.462	0.000	0.462	-
Subtotal			4.796	9.043		7.605		4.705		-		4.705	Continuing	Continuing	N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	21.937	24.005	18.106	11.030	-	11.030	Continuing	Continuing	N/A

Remarks

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2571 / Maintenance Systems (MxS)
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	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Proj 2571																												
Operational Data Integrated Network (ODIN)	Hardware Development								Hardware Development - Next Gen																			
	Software Architecture Development																											
	Software Application Development																											
	ALIS Containerization																											
	Platform Development																											
													Platform Continuous Development															
	Integrated Data Environment Development																											
	Data Architecture Continuous Development																											
	Legacy Modernization and Migration																											
	COTS/GOTS																											
Prognostics and Health Management (PHM)	PHM Algorithm Development																											

2025DON - 0604840M - 2571

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2571 / Maintenance Systems (MxS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2571				
Operational Data Integrated Network (ODIN): Hardware Development	1	2023	4	2024
Operational Data Integrated Network (ODIN): Hardware Development - Next Gen (Prototyping, Dev, Int/Test, Fielding)	1	2025	4	2029
Operational Data Integrated Network (ODIN): Software Architecture Development	1	2023	4	2024
Operational Data Integrated Network (ODIN): Software Continuous Development (Prototyping, Dev, Int/Test, Fielding)	1	2023	4	2029
Operational Data Integrated Network (ODIN): ALIS Containerization (incl. Prototyping, Dev, Int/Test, Fielding)	1	2023	1	2026
Operational Data Integrated Network (ODIN): Platform Development	1	2023	1	2026
Operational Data Integrated Network (ODIN): Platform Continuous Development (Prototyping, Dev, Int/Test, Fielding)	4	2024	4	2029
Operational Data Integrated Network (ODIN): Integrated Data Environment Development	1	2023	4	2026
Operational Data Integrated Network (ODIN): Data Architecture Continuous Development (Prototyping, Dev, Int/Test, Fielding)	1	2023	4	2029
Operational Data Integrated Network (ODIN): Legacy Modernization and Migration	1	2023	1	2025
Operational Data Integrated Network (ODIN): COTS/GOTS Application Configuration, Software Development, and Integration	4	2023	1	2026
Prognostics and Health Management (PHM): PHM Algorithm Development	2	2023	4	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 2572 / Combat Data Systems (CDS)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2572: <i>Combat Data Systems (CDS)</i>	20.355	25.514	17.817	8.382	-	8.382	12.286	20.841	9.517	9.717	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 198												

A. Mission Description and Budget Item Justification

F-35 Combat Data Systems (CDS) Program Management Office mission include investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Hardware/Tools, Reprogramming Verification & Validation Systems (RVVS), and Mission Planning Software/Hardware, which includes the Next Generation Open Mission System (NOMS). Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning and joint reprogramming enterprise. Other costs support Technology Investment for key Modernization / Innovation activities and Cloud based DevSecOps infrastructure.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Joint Reprogramming Environment (JRE)	18.886	12.822	7.933	0.000	7.933
Articles:	-	-	-	-	-
Description: Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise. Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure.					
FY 2024 Plans: Complete efforts for the AGILE development of Common Reprogramming Tools (CRT) to provide Electronic Warfare Squadrons with essential software tools that reduce Mission Data File (MDF) development time and human error and increase combat effectiveness. Continue software coding and testing to support development / deployment of the software tools. Continue to upgrade Reprogramming Verification & Validation Systems (RVVS) to meet the Block 4 capability requirements and meet next generation threats. Continue ongoing efforts to support aircraft in relation to Continuous Development Capability Delivery (C2D2), and Network Boundary Consolidation. Continue development support for defining, managing and acquiring the F-35 Reprogramming capability enhancements identified in approved requirements documents for Block 4 and modernization efforts					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy	Date: March 2024
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2572 / Combat Data Systems (CDS)
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

and support efforts for joint reprogramming enterprise activities. Continue efforts on the Advanced Development, Integration & Test contract to integrate Block 4 software data loads at reprogramming laboratories.

FY 2025 Base Plans:

Enhancement efforts for the AGILE development of Common Reprogramming Tools (CRT) to provide Electronic Warfare Squadrons with essential software tools that reduce both Mission Data File (MDF) development time & human error while increasing combat effectiveness. Continue software development efforts that deploy software tools to increase capacity within the reprogramming laboratories. Continue to upgrade Reprogramming Verification & Validation Systems (RVVS) to meet the Block 4 capability requirements and meet next generation threats. Continue ongoing efforts to support aircraft in relation to Continuous Development Capability Delivery (C2D2). Continue development support for defining, managing and acquiring the F-35 Reprogramming capability enhancements identified in approved requirements documents for Block 4 and modernization efforts and support efforts for joint reprogramming enterprise activities. Continue efforts with Advanced Development, Integration & Test (BFC) contract to integrate Block 4 software data loads at reprogramming laboratories. Continue efforts to improving the velocity of MDF development, improving the tools available to the reprogramming laboratories to process and reprogramming operational data, and to support rapid reprogramming activities.

FY 2025 OCO Plans:

N/A

FY 2024 to FY 2025 Increase/Decrease Statement:

Decrease from FY2024 to FY2025 is due to completion of efforts associated with Government Systems Engineering and Testing, specifically the Partner Analysis Laboratory.

Title: Mission Planning Support Environment (MPSE)

Articles:

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
	6.628	4.995	0.449	0.000	0.449
	-	-	-	-	-

Description: Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise. Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure.

FY 2024 Plans:

Continue development support for F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy	Date: March 2024
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2572 / Combat Data Systems (CDS)
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>software. Continue development and support of the Mission Planning Support Environment (MPSE) software suite that is common but tailorable to the unique requirements of all developmental and fielded Operational Flight Program (OFF) / Software Data Load (SDL) releases. Continue development of the F-35 Next Generation Mission Planning program, including completion of the development and initial fielding of MPE Squadron Kits (MSK), significantly reducing processing times and equipment footprint. Continue efforts to transition F-35 mission planning software development to Agile and DevSecOps methodologies to reduce costs and increase speed of delivering capabilities to the warfighter. Continue ongoing efforts to transition F-35 mission planning software development workload from contractor to the Government, securing organic software development capability and reducing costs.</p> <p>FY 2025 Base Plans: Continue development support for F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software. Improve the common, tailorable MPSE software suite that supports all developmental and fielded Operational Flight Program (OFF) / Software Data Load (SDL) releases, as well as introducing a virtualized environment that reduces development build times and administrative burdens for squadrons. Further enhance F-35 Next Generation Mission Planning program, focusing on development and certification of Ground Data Receptacle replacement, meeting latest cybersecurity directives. Field first iteration of cloud-developed NextGen Open Mission Systems (NOMS) mission planning software, leveraging DevSecOps development pipeline; begin development of classified components on IL 6+ JPO Cloud environment. Build upon MPSE efforts to partner with government organizations for software development and contract directly with equipment suppliers, continuing to reduce overhead costs and management burdens.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: Decrease from FY2024 to FY2025 is due to completion of efforts associated with Government Systems Engineering and Testing, specifically the Partner Analysis Laboratory.</p>					
Accomplishments/Planned Programs Subtotals	25.514	17.817	8.382	0.000	8.382

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

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / <i>F-35B C2D2</i>	Project (Number/Name) <i>2572 / Combat Data Systems (CDS)</i>

D. Acquisition Strategy

Combat Data Systems Program Management Office (CDS PMO) continues to develop JRE and MPSE requirements by leveraging existing F-35 Joint Program Office contracts, use of Other Government Contracts, and by developing and competing new contract actions for unique CDS PMO requirements.

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2572 / Combat Data Systems (CDS)
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CDS Prime JRE Development - CRT Increment 1	C/CPFF	Lockheed Martin : FT. Worth, TX	3.450	6.452	Dec 2022	3.486	Dec 2023	0.628	Dec 2024	-		0.628	64.083	78.099	77.471
CDS Prime JRE Development - RVVS	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	6.259	Dec 2022	4.167	Dec 2023	1.000	Dec 2024	-		1.000	102.150	113.576	113.458
CDS Prime JRE Development - CURC	C/CPFF	Lockheed Martin : FT. Worth, TX	1.975	0.000		0.000		0.000		-		0.000	0.000	1.975	1.975
CDS Prime JRE Development - TR-3	C/CPIF	Lockheed Martin : FT. Worth, TX	1.083	0.371	Mar 2023	0.000		0.000		-		0.000	0.000	1.454	1.454
CDS Prime JRE Development - SEIT	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	1.444	Jul 2023	3.449	Jul 2024	0.000		-		0.000	48.300	53.193	53.193
CDS Prime JRE Development - FRL	MIPR	Pt. Magu, CA : Pt. Magu, CA	0.000	0.469	Jan 2023	0.000	Jan 2024	0.000		-		0.000	0.000	0.469	0.469
CDS Prime JRE Development - Capability Development	MIPR	Eglin AFB, FL : Eglin AFB, FL	1.050	3.420	Dec 2022	0.890	Dec 2023	0.890	Dec 2024	-		0.890	0.000	6.250	5.360
CDS Prime MPSE Development F-35 Next Gen Mission PlanningS	C/CPIF	Lockheed Martin : FT. Worth, TX	5.965	1.961	Mar 2023	1.961	Mar 2024	2.184	Mar 2025	-		2.184	17.600	29.671	27.487
CDS Prime MPSE Development - Capability Development	MIPR	Eglin AFB, FL : Eglin AFB, FL	0.000	2.954	Dec 2022	2.507	Dec 2023	1.874	Dec 2024	-		1.874	0.000	7.335	5.461
CDS Prime JRE Development - Advanced Dev (BFC, formerly SEIT)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	0.000		0.000		0.349	Jul 2025	-		0.349	0.000	0.349	-
CDS Prime JRE Development - Block 4 Capability Delivery (P2.3 Mod 5)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	0.000		0.000		0.100	Dec 2024	-		0.100	0.000	0.100	-
Subtotal			13.523	23.330		16.460		7.025		-		7.025	232.133	292.471	N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy

Date: March 2024

Appropriation/Budget Activity
1319 / 7

R-1 Program Element (Number/Name)
PE 0604840M / F-35B C2D2

Project (Number/Name)
2572 / Combat Data Systems (CDS)



F-35 Combat Data Systems Development Roadmap – Reprogramming

2023				2024				2025				2026				2027				2028				2029			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

TR3 Upgrade
Reprogramming Lab Upgrade for U.S. Reprogramming Lab (USRL)

USRL TR3 Configuration

USRL TR2 Configuration

Switchable configuration within 8 hours

RVVS (EW Stimulator Upgrades)
Ability to V&V with Block 4 capabilities / complex emitters (through Lot 17) USRL & NIRL

Contract Award

PDR CDR

EW Stimulator Development

Delivery / Integrate Into Lab

USRL #1&2

Cap. Delivery (P2.3)
Block 4 EW PME
Development efforts for EW Console, CRT Infrastructure & PME

EW Console Development

CDR for EW Console CDR for CRT Infrastructure

CRT Infrastructure Development

Full EW HW Development

Cap. Delivery (Block Four Contract – BFC)
(formerly SEIT)
40P02+ Mission Data Tools, Block 4 hardware, training (USRL/ACURL/NIRL)

Contract

- Complete Block 4 development and integration
- Include future capability planning and systems engineering
- Provide continuum of agile development, integration and test

Common Reprogramming Tools

HW Procurement

MVP Development complete

CRT Inc 1 - Development

CRT Increment 1 will develop a software test line to support Block 4 enablement

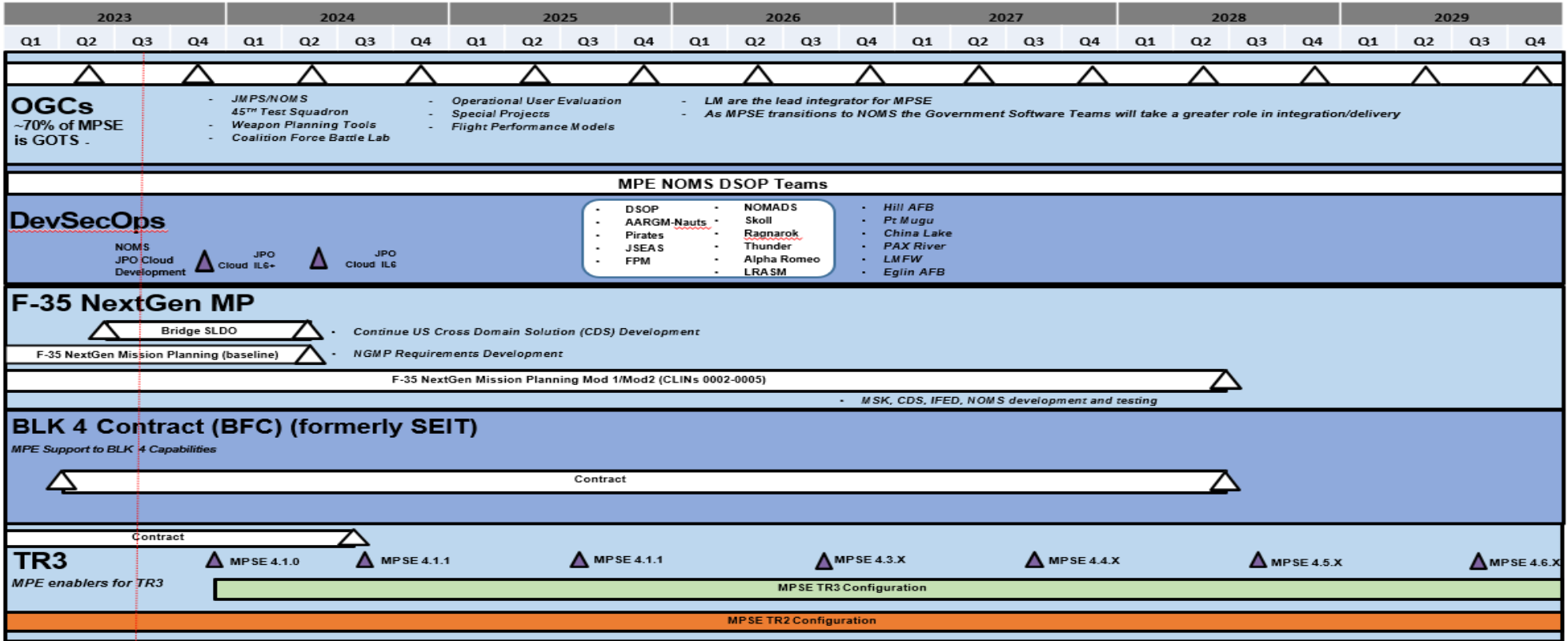
Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy Date: March 2024

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2572 / Combat Data Systems (CDS)
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F-35 Combat Data Systems

Development Roadmap - MPE



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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2572 / Combat Data Systems (CDS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2572				
Joint Reprogramming Environment (JRE): Technology Refresh 3 (TR3) Reprogramming Lab Upgrade	1	2023	1	2024
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems (RVVS): Stimulator Upgrades SLDO 3	1	2023	3	2023
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems (RVVS): Stimulator Upgrades Main	1	2023	4	2025
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems (RVVS): Long Lead Procurement	1	2023	3	2024
Joint Reprogramming Environment (JRE): Phase 2.3 - 30P05/30P07 Mission Data Tools - Contract	1	2023	3	2024
Joint Reprogramming Environment (JRE): 40P02+ Mission Data Tools, Block 4 Hardware, Training	3	2023	2	2028
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT LOE	1	2023	1	2024
Joint Reprogramming Environment (JRE): CRT INC 1 - Long Lead Procurement	1	2023	1	2023
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT INC 1 - Development	1	2023	4	2024
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - Contract	1	2023	3	2023
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR2 Configuration	3	2023	4	2029
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR3 Configuration	1	2023	4	2029
Mission Planning Support Environment (MPSE): MPSE Re-architecture - Contract	3	2023	4	2028
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Prototype SLDO	1	2023	1	2024

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2572 / Combat Data Systems (CDS)
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment 1	1	2023	4	2024
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment 2	2	2023	3	2029
Mission Planning Support Environment (MPSE): DevSecOps - Hill AFB, China Lake, Pt Mugu	1	2023	4	2029
Mission Planning Support Environment (MPSE): DevSecOps - NOMS Cloud Development (Multiple)	1	2023	4	2029
Mission Planning Support Environment (MPSE): OGCs - Contracts	1	2023	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 2573 / Training Systems and Simulation (TSS)			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2573: Training Systems and Simulation (TSS)	38.749	35.876	30.331	26.722	-	26.722	33.868	48.100	31.632	32.296	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 198												

Note

Beginning in FY2022, Training Systems and Simulation (TSS) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2025 request.

A. Mission Description and Budget Item Justification

The F-35 Training Systems & Simulation Program Management Office (TSS PMO) development portfolio is aligned with the program's Continuous Capability Development & Delivery (C2D2) efforts and is organized in three primary lines of effort; Training System Capability Development (TSCD), Training Systems Investments (TSI) Roadmap, and Joint Simulation Environment (JSE) Development.

Training System Capability Development (TSCD): Efforts will continue with a primary focus on alignment of Training System capabilities with other elements of the Air System. Specific efforts will include development of Block 4 capabilities to equivalent maturity of those in the Air Vehicle enabling release of one capability upgrade per year to the fleet, continued development of the Production Runtime Server (PRTS) - Pilot Training Device TR-3 equivalent - to enable Block 4 capabilities, continued development of Live-Virtual-Constructive (LVC) capabilities including Distributed Mission Training (DMT), and appropriate lab infrastructure to enable Training System development.

Training Systems Investments (TSI) Roadmap: Development efforts will continue to focus on modernization of activities outlined in the TSS PMO roadmaps that will target the requirement of bringing higher fidelity training to the warfighter. Specific development and testing efforts focus on software architecture modernization, hardware architecture modernization, and Synthetic Threat Enhancement.

Joint Simulation Environment (JSE) Development: Development and testing efforts will continue with a focus on remaining F-35 In-A-Box (FIAB) software integration, complex threat/sensor model integration to establish operationally representative simulation environment required for operational test trial validity, and the completion of Verification, Validation and Accreditation (VV&A) activities for F-35 Block 4 modernization. Efforts will include FIAB development, model fidelity and capability upgrades for existing threats/sensors/weapons, development of new threat/sensor/weapon models, and environment upgrades to enable effective verification of Block 4 capabilities. Efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB and Nellis AFB.

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2573 / Training Systems and Simulation (TSS)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Training Systems Capability Development (TSCD)	18.937	15.500	15.384	0.000	15.384
Articles:	-	-	-	-	-
<p>Description: Efforts will continue with a primary focus on alignment of Training System capabilities with other elements of the Air System. Specific efforts will include development of capabilities (CI1-3) to equivalent maturity of those in the Air Vehicle enabling release of one capability upgrade per year to the fleet, continued development of the Production Runtime Server (PRTS) - Pilot Training Device TR-3 equivalent - to enable CI1-3 capabilities, continued development of Live-Virtual-Constructive (LVC) capabilities including Distributed Mission Training (DMT), and appropriate lab infrastructure to enable Training System development.</p> <p>FY 2024 Plans: Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2024. Additionally, the Production RunTime Server (PRTS) will continue critical development, integration and test activities required to enable TR-3 training capabilities. The Distributed Mission Trainer (DMT) Program will continue with development activities to ensure DMT can support the CI1-3 capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the Live-Virtual-Constructive (LVC) portfolio, requirements derivation and planning actives for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US Service's LVC integrated training environment. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio. Effects Based Simulation (EBS) will continue design, development, and integration activities to support requirements analysis and pilot training tasks. EBS was formerly carried as an effort in the Joint Simulation Environment (JSE) R-2A category, but was aligned to the Training System Capability Development (TSCD) R-2A category beginning in FY23.</p> <p>FY 2025 Base Plans: Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2025. Additionally, the Production RunTime Server (PRTS) will continue critical development, integration and test activities required to enable TR-3 training capabilities. The Distributed Mission Trainer (DMT) Program will continue with development activities to ensure DMT can support the CI1-3</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2573 / Training Systems and Simulation (TSS)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the Live-Virtual-Constructive (LVC) portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US Service's LVC integrated training environment. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio. Effects Based Simulation (EBS) will continue design, development, and integration activities to support requirements analysis and pilot training tasks. EBS was formerly carried as an effort in the Joint Simulation Environment (JSE) R-2A category, but was aligned to the Training System Capability Development (TSCD) R-2A category beginning in FY23.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The decrease from FY2024 to FY2025 is due to delays in the components required for the Training System to shift from TR-2 to TR-3.</p>					
<p>Title: Training Systems Investments (TSI) Roadmap</p> <p align="right">Articles:</p> <p>Description: Development efforts will continue to focus on modernization of activities outlined in the TSS PMO roadmaps that will target the requirement of bringing higher fidelity training to the warfighter. Specific development and testing efforts focus on software architecture modernization, hardware architecture modernization, and Synthetic Threat Enhancement.</p> <p>FY 2024 Plans: Efforts will continue to support analysis, design, development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY24. Additionally, F-35 Lightning Integrated Training Environment (FLITE) will continue critical development, integration and test activities with the first delivery expected in FY26. The Distributed Mission Training (DMT) Program will continue with development activities to ensure DMT can support the C11-3 capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. DMT will ensure the connection of F-35 Pilot Training Devices (PTDs) to customer provided</p>	6.935	6.250	2.757	0.000	2.757
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2573 / Training Systems and Simulation (TSS)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>and accredited Wide Area Networks (WAN) to facilitate connecting multiple sites and enabling a virtual training environment in a common synthetic environment for the US Services. Within the Live-Virtual-Constructed (LVC) portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US LVC integrated training environment.</p> <p>FY 2025 Base Plans: Efforts will continue to support analysis, design, development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY25. Additionally, F-35 Lightning Integrated Training Environment (FLITE) will continue critical development, integration and test activities with the first delivery expected in FY26. The Distributed Mission Training (DMT) Program will continue with development activities to ensure DMT can support the C11-3 capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. DMT will ensure the connection of F-35 Pilot Training Devices (PTDs) to customer provided and accredited Wide Area Networks (WAN) to facilitate connecting multiple sites and enabling a virtual training environment in a common synthetic environment for the US Services. Within the Live-Virtual-Constructed (LVC) portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US LVC integrated training environment.</p> <p>FY 2025 OCO Plans: N/A</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The decrease from FY2024 to FY2025 is primarily attributable to delays in the integration efforts of Joint Simulation Environment components, specifically Next Generation Threat System (NGTS), into the exportable Program of Record (PoR) Pilot Training Device (PTD).</p>					
<p>Title: Joint Simulation Environment (JSE) Development</p> <p align="right">Articles:</p> <p>Description: Development and testing efforts will continue with a focus on remaining F-35 In-A-Box (FIAB) software integration, complex threat/sensor model integration to establish operationally representative simulation environment required for operational test trial validity, and the completion of Verification, Validation and Accreditation (VV&A) activities for F-35 Block 4 modernization. Efforts will include FIAB development, model fidelity and capability upgrades for existing threats/sensors/weapons, development of new threat/sensor/weapon</p>	10.004	8.581	8.581	0.000	8.581
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2573 / Training Systems and Simulation (TSS)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
models, and environment upgrades to enable effective verification of Block 4 capabilities. Efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB and Nellis AFB.					
<i>FY 2024 Plans:</i> Efforts will include modernization of F-35 In-A-Box (FIAB) software development and integration, model fidelity and capability upgrades for exisitng threats/sensors/weapon models, development of new threat/sensor/weapon models, and environment upgrades to enable effective verification of Block 4 capabilities. Planning efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB, and Nellis AFB.					
<i>FY 2025 Base Plans:</i> Efforts will include modernization of F-35 In-A-Box (FIAB) software development and integration, model fidelity and capability upgrades for exisitng threats/sensors/weapon models, development of new threat/sensor/weapon models, and environment upgrades to enable effective verification of Block 4 capabilities. Planning efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB, and Nellis AFB.					
<i>FY 2025 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	35.876	30.331	26.722	0.000	26.722

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

N/A

Remarks

D. Acquisition Strategy

The majority of Training System capability development requirements (CI1-3 development, PRTS development, Lab Infrastructure) will be executed via training specific CLINs in Enterprise-level development contracts (Block 4 - Phase 2.3, Development Foundation). Training System Investment requirements will be executed via a combination of training specific CLINs in Enterprise-level contracts, TSS PMO specific contract actions and Other Transaction Authority (OTA) contracts. JSE development requirements will be executed via a combination of Enterprise-level contract actions and MIPR transactions to support OGC activities.

In concert with continued maturation of the F-35 organizational pivot, the TSS PMO acquisition strategy will transition toward TSS PMO controlled contract actions that will enable more effective oversight of PMO cost-schedule-performance execution.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Navy												Date: March 2024			
Appropriation/Budget Activity 1319 / 7						R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 2573 / Training Systems and Simulation (TSS)					

Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
TSS Prime LM Training System Alignment (TSCD)	C/CPIF	Lockheed Martin : FT. Worth, TX	7.900	7.750	Nov 2022	5.960	Nov 2023	6.500	Nov 2024	-		6.500	65.360	93.470	86.970
TSS Prime LM PTD TR-3 Development (TSCD)	C/CPIF	Lockheed Martin : FT. Worth, TX	6.581	6.225	Nov 2022	4.787	Nov 2023	4.885	Nov 2024	-		4.885	33.680	56.158	51.273
TSS Prime LM Training Lab Infrastructure (TSCD)	C/CPFF	Lockheed Martin : FT. Worth, TX	4.376	4.755	Nov 2022	3.657	Nov 2023	2.899	Nov 2024	-		2.899	28.764	44.451	41.552
TSS Live-Virtual-Constructive (LVC) - DMT (TSCD)	C/CPFF	Lockheed Martin : FT. Worth, TX	0.624	0.625	Nov 2022	0.481	Nov 2023	0.450	Nov 2024	-		0.450	16.587	18.767	18.317
TSS Effects Based Simulation Development (TSCD)	WR	NAWCAD : Patuxent River, MD	0.000	0.800	Nov 2022	0.615	Nov 2023	0.650	Nov 2024	-		0.650	7.114	9.179	8.529
TSS Hardware Re-architecture (TSI)	MIPR	DTIC : Fort Belvoir, VA	3.619	3.215	Nov 2022	2.897	Nov 2023	1.000	Nov 2024	-		1.000	3.675	14.406	13.406
TSS Software Re-architecture (TSI)	C/CPIF	Lockheed Martin : FT. Worth, TX	3.843	2.610	Nov 2022	2.353	Nov 2023	1.257	Nov 2024	-		1.257	17.888	27.951	26.694
TSS Synthetic Threat Enhancement (TSI)	C/CPFF	Lockheed Martin : FT. Worth, TX	1.247	1.110	Nov 2022	1.000	Nov 2023	0.500	Nov 2024	-		0.500	6.107	9.964	9.464
TSS Prime LM FIAB Development (JSE)	C/CPIF	Lockheed Martin : FT. Worth, TX	5.034	3.639	Nov 2022	4.166	Nov 2023	3.111	Nov 2024	-		3.111	18.775	34.725	32.832
Subtotal			33.224	30.729		25.916		21.252		-		21.252	197.950	309.071	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 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
TSS Pax Development Support (JSE)	WR	NAWCAD : Patuxent River, MD	4.349	4.207	Nov 2022	3.609	Nov 2023	4.200	Nov 2024	-		4.200	17.993	34.358	30.158
TSS Other Development Support (JSE)	Various	Various : Various	0.409	0.940	Nov 2022	0.806	Nov 2023	1.270	Nov 2024	-		1.270	1.692	5.117	3.847
TSS EBS Development Support (JSE)	Various	Various : Various	0.767	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2573 / Training Systems and Simulation (TSS)
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	FY23				FY24				FY25				FY26				FY27				FY28				FY29			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
A/V Milestones			★30P08		★41P01				★42P01				★42P02				★42P03				★42P04				★42P05			
Training System Capability Development	<i>Training System Capability Development – (Phase 2.3 CLIN 0400, 0405, BFC)</i>																											
	<i>Training System Lab Infrastructure – (DFC CLIN 0009)</i>																											
	<i>Production Run-Time Server (PRTS) Dev – (Phase 2.3 CLIN 0401)</i>																											
	<i>Effects Based Simulation (EBS) Capability Development</i>																											
	<i>Distributed Mission Training (DMT)</i>																											
Training System Architecture Modernization	<i>F-35 Lightning Integrated Training Environment (FLITE) – (Ph 2.3 CLIN 0127, 0405)</i>																											
	<i>Weapon Service Development (Phase 2.3 Clin 0402)</i>																											
	<i>Common Training Services – (Phase 2.3 Clin 0404)</i>																											
									<i>Synthetic Threat Enhancement</i>																			
Joint Sim Env Development	<i>JSE IOT&E Execution</i>																											
	<i>JSE Blk 4 Capability Development</i>																											
	<i>F-35 In-a-Box (FIAB) Blk 4 Capability Development</i>																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2573 / Training Systems and Simulation (TSS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2573				
Training Systems and Simulation (TSS): Training System Capability Development	1	2023	4	2029
Training Systems and Simulation (TSS): Training System Lab Infrastructure	1	2023	4	2029
Training Systems and Simulation (TSS): Production Run-Time Server (PRTS) TR-3 Development	1	2023	4	2025
Training Systems and Simulation (TSS): Effects Based Simulation (EBS) Capability Development	1	2023	4	2029
Training Systems and Simulation (TSS): Distributed Mission Training (DMT)	1	2023	4	2029
Training Systems and Simulation (TSS): F-35 Lightning Integrated Training Environment (FLITE)	1	2023	2	2025
Training Systems and Simulation (TSS): Weapon Service Development	1	2023	2	2025
Training Systems and Simulation (TSS): Common Training Services	1	2023	4	2025
Training Systems and Simulation (TSS): Synthetic Threat Environment	1	2024	2	2026
Training Systems and Simulation (TSS): Joint Simulation Environment, Capability Development & Air System Alignment	1	2023	4	2029
Training Systems and Simulation (TSS): JSE IOT&E Execution	1	2023	4	2023
Training Systems and Simulation (TSS): JSE Block 4 Capability Development	2	2023	4	2029
Training Systems and Simulation (TSS): F-35 In-A-Box (FIAB) Block 4 Capability Development	2	2023	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy										Date: March 2024		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 2574 / Infrastructure and Support Costs			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2574: Infrastructure and Support Costs	2.424	6.284	2.691	2.761	-	2.761	3.112	3.156	2.911	2.972	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 198												

Note
Beginning in FY2022, Infrastructure and Support Costs was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2025 request.

A. Mission Description and Budget Item Justification
The F-35 Joint Program Office equips U.S. and allied forces with operational F-35 weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The acquisition workforce funded in this program element will support development phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development. This funding does not include costs for base operating support civilian personnel. This program element supports both civilian pay and non-pay support requirements. Additional infrastructure and program management support costs include travel, supplies, contractor support, off-base leases, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to C2D2 development efforts.

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, Article Quantities in Each)					FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: Core Program Support/CSS Support					6.284	2.691	2.761	0.000	2.761
Articles:					-	-	-	-	-
Description: Includes off-base leases, Advisory and Assistance Services (A&AS), travel, supplies, Navy Working Capital fund subject matter expert support, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to C2D2 development efforts.									
FY 2024 Plans:									

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2574 / Infrastructure and Support Costs

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Continue to support program office efforts, including Arlington, VA program unique off-base lease costs, CSS support, travel, supplies, Navy working capital technical SME labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to C2D2 development efforts. FY 2025 Base Plans: Continue to support program office efforts, including Arlington, VA program unique off-base lease costs, CSS support, travel, supplies, Navy working capital technical SME labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to to C2D2 development efforts. FY 2025 OCO Plans: N/A FY 2024 to FY 2025 Increase/Decrease Statement: Increase from FY2024 to FY2025 due to price adjustments and/or inflation.					
Accomplishments/Planned Programs Subtotals	6.284	2.691	2.761	0.000	2.761

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

N/A

Remarks

D. Acquisition Strategy

N/A

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2574 / Infrastructure and Support Costs
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Core Program Support Cyber Risk Reduction	Various	Various : Various	0.500	0.500	Dec 2022	0.500	Dec 2023	0.500	Dec 2024	-		0.500	Continuing	Continuing	Continuing
Core Program Support Model-Based Systems Engineering	Various	IBM : Arlington, VA	0.100	0.150	Dec 2022	0.150	Feb 2024	0.150	Feb 2025	-		0.150	Continuing	Continuing	Continuing
Core Program Support Air Worthiness Support and Cyber Safe Support	C/FFP	DTIC : Fort Belvoir, VA	0.000	0.600	Dec 2022	0.600	Feb 2024	0.600	Feb 2025	-		0.600	Continuing	Continuing	Continuing
Subtotal			0.600	1.250		1.250		1.250		-		1.250	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CSS Support/Civ Support	Various	Various : Various	1.550	4.484	Dec 2022	1.191	Dec 2023	1.241	Dec 2024	-		1.241	Continuing	Continuing	Continuing
Core Program Support Off-Base Leases	MIPR	WHS : NCR	0.094	0.550	Oct 2022	0.000		0.000		-		0.000	0.000	0.644	0.186
Core Program Support Travel	Various	Various : Various	0.180	0.000	Oct 2022	0.250	Oct 2023	0.270	Oct 2024	-		0.270	Continuing	Continuing	Continuing
Subtotal			1.824	5.034		1.441		1.511		-		1.511	Continuing	Continuing	N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		2.424	6.284	2.691	2.761	-	2.761	Continuing	Continuing	N/A

Remarks

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2574 / Infrastructure and Support Costs
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Proj 2574	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Infrastructure and Support Costs	Continued JPO Infrastructure and Support Costs																											
Empty grid for data entry																												

2025DON - 0604840M - 2574

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2574 / Infrastructure and Support Costs

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2574				
Infrastructure and Support Costs: Continued JPO Infrastructure and Support Costs	1	2023	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 2575 / DevSecOps			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2575: DevSecOps	13.573	7.503	9.072	10.347	-	10.347	12.931	1.418	17.761	18.132	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, DevSecOps was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2025 request.

A. Mission Description and Budget Item Justification

The F-35 Software Development, Security & Operations (DevSecOps) Cloud platform environment allows for US Government and contracted software development teams to produce, test and deploy capabilities for F-35 supported Project Management Offices (PMO) and Directorates. This includes providing support to the Combat Data Systems (CDS), Air Vehicle (AV), Maintenance Systems (MxSYS), Propulsion, Training Systems and Simulation (TSS) PMOs, and Directorate of Engineering. The mission of DevSecOps is to provide a centralized F-35 Data repository, a consolidated F-35 software development environment, and support for system development lifecycle (SDLC) of the F-35 platform, allowing for rapid release cycles to keep the F-35 ahead of its adversaries. Investment in, and modernization of, DevSecOps include efforts to support F-35 Software modernization efforts, develop organic government software capabilities, support SDLC and flight testing capabilities, enhance the security posture of the software development pipeline, and support goals of reducing long-term on-premise infrastructure environments cost, ultimately resulting in reducing fleet delivery timelines.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: DevSecOps Support	7.503	9.072	10.347	0.000	10.347
Articles:	-	-	-	-	-
Description: The F-35 Software Development, Security & Operations (DevSecOps) Cloud platform environment allows for US Government and contracted software development teams to produce, test and deploy capabilities for F-35 supported Project Management Offices (PMO) and Directorates. This includes providing support to the Combat Data Systems (CDS), Air Vehicle (AV), Maintenance Systems (MxSYS), Propulsion, Training Systems and Simulation (TSS) PMOs, and Directorate of Engineering. The mission of DevSecOps is to provide a centralized F-35 Data repository, a consolidated F-35 software development environment, and support for system development lifecycle (SDLC) of the F-35 platform, allowing for rapid release cycles to keep the F-35 ahead of its adversaries. Investment in, and modernization of, DevSecOps include efforts to support F-35 Software modernization efforts, develop organic government software capabilities, support SDLC and flight testing capabilities, enhance the security posture of the software development pipeline, and support goals of					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy	Date: March 2024
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2575 / DevSecOps
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
<p>reducing long-term on-premise infrastructure environments cost, ultimately resulting in reducing fleet delivery timelines.</p> <p>FY 2024 Plans: Mature DevSecOps environment into an operational platform for F-35 Software Development supporting US Government, contracted and partner nation applications plus Project Management Offices (PMO) software application development, model based system engineering. Continue transition of PMOs into centralized JPO-managed cloud environment. Continue obtaining appropriate software Cloud development environment, talent, licensing and tools. Maintain Cloud, talent and consumption contracts. Continue meeting cyber security requirements. Develop continuous Authority to Operate (cATO) DevSecOps pipeline and tools to meet compliance requirements and software modernization initiatives for all DevSecOps environments.</p> <p>FY 2025 Base Plans: Continue development and support for DevSecOps infrastructure, platform, software development pipeline, and joint F-35 organizational connections. Continue to develop a transition plan to stand-up a team consisting of Industry and Government software development in support of software modernization and DevSecOps Cloud transition. Establish initial capabilities and expand existing software development efforts with the goal of transitioning dispersed and separated software development environments into model based systems engineering and a fully collaborative requirements to development environment. Capabilities include software development environment for Maintenance Systems ODIN, ALIS to ODIN migration, Combat Data System's Mission Planning, Propulsion's Offboard Management System, and Air Vehicle Mission System domains. Additional goals of delivering flight-worthy rapid prototyping of capability, virtual test capability, and transitioning workloads to lower cost software sustainment efforts. New requirements from PMOs are expected. Prepare environment for on-boarding, as well as transitioning the PMOs from separate pillars to a centralized JPO-managed cloud environment. Includes software licensing for PMO tool sets and associated applications. Major cost drivers include requirements tool, and collaboration tools, authentication tools - supporting Single Sign On, Multi-Factor Authentication and development tools. For software tooling efforts, working towards an eventual consolidation of tools across the PMOs (i.e. application rationalization) with an end goal of a standardized compiler tool sets and Cybersecurity compliance. Accordingly, talent/consumption (hardware and software to run the environment) contracts must be renewed and expanded. Cybersecurity requirements must also be met, meaning additional resources for security processes, monitoring, scanning, vulnerability identification plus mitigation, and meeting all requirements for DoD compliance to obtain ongoing/continuous Authority to Operate (ATO) and continuous Authority to Operate (cATO).</p> <p>FY 2025 OCO Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2575 / DevSecOps

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
N/A					
<i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The increase from FY2024 to FY2025 is due to an update to the Cloud estimate based on component and service data actuals to support DevSecOps development and integration to a centralized Cloud environment.					
Accomplishments/Planned Programs Subtotals	7.503	9.072	10.347	0.000	10.347

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

N/A

Remarks

D. Acquisition Strategy

The DevSecOps Phase 1 demonstrates prototype designs, integration of Defense Industry Base partners and PMOs, appropriate set of technology stacks to be integrated, identifying ROI and buying down technical risk. Technology maturation; putting in place the necessary contracts for talent, licenses and Cloud consumption to support software pipeline delivery for F-35. Development; building, testing and deploying Cloud ecosystems Impact Level (IL) 2 - 6+ and software development pipeline utilizing contracted and government support. Operation and Support; maintain Cloud ecosystem utilizing industry research, resources, talent and technology modernization methodologies with the focus on reducing long-term costs for the program.

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2575 / DevSecOps
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Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DevSecOps Development Support - Talent	C/FFP	Various : Various	6.000	3.603	Jan 2023	4.072	Jan 2024	5.400	Jan 2025	-		5.400	Continuing	Continuing	Continuing
DevSecOps Development Support - Licenses	C/FFP	August Schell Enterprises, Inc. : Rockville, MD	4.000	1.900	Jul 2023	2.200	Jun 2024	2.200	Jun 2025	-		2.200	Continuing	Continuing	Continuing
DevSecOps Development Support - Cloud Support	C/FFP	Amazon Web Services, Inc. : Seattle, WA	3.573	2.000	Dec 2022	1.400	Dec 2023	2.200	Dec 2024	-		2.200	Continuing	Continuing	Continuing
DevSecOps Development Support - Industry Stand-up	C/FFP	Various : Various	0.000	0.000	Mar 2023	1.400	Mar 2024	0.547	Mar 2025	-		0.547	Continuing	Continuing	Continuing
Subtotal			13.573	7.503		9.072		10.347		-		10.347	Continuing	Continuing	N/A

Remarks
DevSecOps Ecosystem Standup used for centralized software development in JPO-managed cloud.

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.573	7.503	9.072	10.347	-	10.347	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2025 Navy

Date: March 2024

Appropriation/Budget Activity
1319 / 7

R-1 Program Element (Number/Name)
PE 0604840M / F-35B C2D2

Project (Number/Name)
2575 / DevSecOps

F-35 JPO DevSecOps Roadmaps																																
Schedule Details					FY22				FY23				FY24				FY25				FY26				FY27				FY28			
Events by Sub Project	Start		End		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Quarter	Year	Quarter	Year																												
Production Milestones																																
Contract Award: DevSecOps Infrastructure/Platform/Tools	Q4	FY21	N/A	N/A																												
Contract Award: DevSecOps FENCES	Q4	FY21	N/A	N/A																												
Contract Award: DevSecOps Cloud	Q1	FY22	N/A	N/A																												
Contract Award: DevSecOps Industry Standup	Q4	FY23	Q4	FY28																												
System Development																																
AWS Impact Level 2 Research, Development and Test	Q4	FY20	Q3	FY23																												
AWS Impact Level 5 Buildout	Q1	FY20	Q1	FY22																												
AWS Impact Level 5 Research, Development and Test	Q4	FY21	N/A	N/A																												
AWS Impact Level 6 Buildout	Q4	FY23	Q3	FY25																												
AWS Impact Level 6 Research, Development and Test	Q3	FY24	N/A	N/A																												
AWS Impact Level 6+ (SAP) Buildout	Q4	FY22	Q2	FY24																												
AWS Impact Level 6+ (SAP) Research, Development and Test	Q3	FY23	N/A	N/A																												
Data Transfer as a Service Buildout	Q2	FY21	Q3	FY23																												
Data Transfer as a Service Research, Development and Test	Q1	FY23	N/A	N/A																												
Cloud Gateway (Collateral) LM Connection	Q1	FY25	Q3	FY25																												
Cloud Gateway (Collateral) Research, Development and Test	Q2	FY25	N/A	N/A																												
Cloud Gateway (SAP) LM Connection	Q3	FY21	Q1	FY24																												
Cloud Gateway (SAP) Research, Development and Test	Q4	FY23	N/A	N/A																												

Updated: 06/20/2023

ROT&E Development with customer requirements
 ROT&E initial development

Contract Award and/or Option Exercised
 Initial Operational Capability

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2575 / DevSecOps
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2575				
System Development: AWS Impact Level 2 Research, Development and Test	1	2023	3	2023
System Development: AWS Impact Level 5 Buildout	1	2023	1	2023
System Development: AWS Impact Level 5 Research, Development and Test	1	2023	4	2029
System Development: AWS Impact Level 6 Buildout	1	2024	3	2025
System Development: AWS Impact Level 6 Research, Development and Test	3	2024	4	2029
System Development: AWS Impact Level 6+ (SAP) Buildout	1	2023	2	2024
System Development: AWS Impact Level 6+ (SAP) Research, Development and Test	3	2023	4	2029
System Development: Data Transfer as a Service Buildout	1	2023	4	2023
System Development: Data Transfer as a Service Research, Development and Test	1	2023	4	2029
System Development: Cloud Gateway (Collateral) LM Connection	1	2025	3	2025
System Development: Cloud Gateway (Collateral) Research, Development and Test	2	2025	4	2029
System Development: Cloud Gateway (SAP) LM Connection	1	2023	1	2024
System Development: Cloud Gateway (SAP) Research, Development and Test	4	2023	4	2029
Production Milestones: DevSecOps Infrastructure/Platform/Tools	1	2023	4	2029
Production Milestones: DevSecOps FENCES	1	2023	4	2029
Production Milestones: DevSecOps Cloud	1	2023	4	2029
Production Milestones: DevSecOps Industry Standup	3	2024	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2576 / F-35 USMC Unique
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
2576: F-35 USMC Unique	33.938	30.351	15.157	17.703	-	17.703	29.693	26.464	23.735	24.233	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, F-35 USMC Unique was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2025 request.

A. Mission Description and Budget Item Justification

New USMC Unique Project Unit being established in support of the C2D2 effort for discreet tracking of USMC efforts to include USMC Operational Testing and government engineering support, as well USMC systems engineering efforts and other emerging USMC requirements. Efforts continued from PU 3410, not a new start. Continuing efforts include: Non-recurring engineering and procurement of a test article to evaluate service life of F-35B STOVL Aircraft; Lab Based Security Assessment (LBSA) testing for Interim Full Motion Video (IFMV) Cross Domain Solution (CDS) improvements introduced to fulfill NSA requirements for cybersecurity.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Title: USMC Unique	30.351	15.157	17.703	0.000	17.703
Articles:	-	-	-	-	-
Description: Continuing efforts include: Non-recurring engineering and procurement of a test article to evaluate service life of F-35B STOVL Aircraft; Lab Based Security Assessment (LBSA) testing for Interim Full Motion Video (IFMV) Cross Domain Solution (CDS) improvements introduced to fulfill NSA requirements for cybersecurity, as well USMC systems engineering efforts and other emerging USMC requirements.					
FY 2024 Plans: Continue test planning and F-35B STOVL durability test article build in preparation for test execution. This durability test effort is required to verify the 8,000 hour full service life of the F-35B variant. Lab Based Security Assessment (LBSA) testing will be executed to verify Cross Domain Solution (CDS) improvements introduced to fulfill NSA Raise The Bar (RTB) requirements for cybersecurity. Various STOVL performance tests will funded such as fuel densiometer and narrow runway, as well as envelope expansion efforts for certain weapon types. USMC Unique Operational Test funding will support various integrated tests and investigations. The following will be funded in order to support the various tests and investigations: manpower, F-35 SAPF facilities, weapons,					

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2576 / F-35 USMC Unique

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
flight hours, range time, and chase, target & tanker support assets, as well USMC systems engineering efforts and other emerging USMC requirements. FY 2025 Base Plans: Continue test planning and F-35B STOVL durability test article build to support ramp up of test execution. This durability test effort is required to verify the 8,000 hour full service life of the F-35B variant. Lab Based Security Assessment (LBSA) testing will be executed to verify Cross Domain Solution (CDS) improvements introduced to fulfill NSA Raise The Bar (RTB) requirements for cybersecurity. Various STOVL performance tests will funded such as fuel densimeter and narrow runway, as well as envelope expansion efforts for certain weapon types. USMC Unique Operational Test funding will support various integrated tests and investigations. The following will be funded in order to support the various tests and investigations: manpower, F-35 SAPF facilities, weapons, flight hours, range time, and chase, target & tanker support assets, as well USMC systems engineering efforts and other emerging USMC requirements. FY 2025 OCO Plans: N/A FY 2024 to FY 2025 Increase/Decrease Statement: Increase from FY2024 to FY2025 is due to program ramp up of test execution.					
Accomplishments/Planned Programs Subtotals	30.351	15.157	17.703	0.000	17.703

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

N/A

Remarks

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ both Cost Plus Fixed Fee and various organic funding sources for the USMC unique development efforts.

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2576 / F-35 USMC Unique
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Proj 2576	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
F-35 USMC Unique	USMC Unique Operational Testing																															
BH-2 Test Article Configuration																																
BH-2 Test Article Build																																
BH-2 Test Planning																																
	BH-2 Test Execution																															

2025DON - 0604840M - 2576

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 2576 / F-35 USMC Unique

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2576				
F-35 USMC Unique: USMC Unique Operational Testing	1	2023	4	2029
F-35 USMC Unique: BH-2 Test Article Configuration	1	2023	1	2023
F-35 USMC Unique: BH-2 Test Article Build	1	2023	2	2024
F-35 USMC Unique: BH-2 Test Planning	1	2023	4	2023
F-35 USMC Unique: BH-2 Test Execution	1	2023	4	2029

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Navy **Date:** March 2024

Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2				Project (Number/Name) 9999 / Congressional Adds			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	18.100	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	18.100
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Interest Items not included in other Projects.

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

	FY 2023	FY 2024
<i>Congressional Add:</i> F135 Engine Enhancement	18.100	0.000
<i>FY 2023 Accomplishments:</i> N/A		
<i>FY 2024 Plans:</i> N/A		
Congressional Adds Subtotals	18.100	0.000

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

N/A

Remarks

D. Acquisition Strategy

N/A

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

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 9999 / Congressional Adds
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FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 9999	
F135 Engine Enhancement (FY22 and FY23 Congressional Add Funding Only)	
PP F135 Engine Modernization Detailed Design	
PP F135 Engine Modernization Development	

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Navy		Date: March 2024
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / F-35B C2D2	Project (Number/Name) 9999 / Congressional Adds

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
F135 Engine Enhancement (FY22 and FY23 Congressional Add Funding Only)	1	2023	1	2024
PP F135 Engine Modernization Detailed Design	2	2024	3	2025
PP F135 Engine Modernization Development	3	2025	4	2029