



Testimony

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and Land Forces, Committee on Armed
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F-35 JOINT STRIKE FIGHTER

More Actions Needed to Explain Cost Growth and Support Engine Modernization Decision

Statement of Jon Ludwigson, Director, Contracting and
National Security Acquisitions

Accessible Version

GAO Highlights

Highlights of [GAO-24-107177](#), a testimony before the Subcommittee on Tactical Air and Land Forces, Committee on Armed Services, House of Representatives

Why GAO Did This Study

The F-35 Lightning II Joint Strike Fighter program remains DOD's most expensive weapon system program. It is estimated that it will cost over \$1.7 trillion to buy, operate, and sustain these aircraft.

The F-35 program manages a family of strike fighter aircraft that integrates stealth technology with advanced sensors and computer networking capabilities. DOD plans to acquire 2,470 F-35s to replace several other aircraft used by the Air Force, Navy, and Marine Corps. As of December 2023, the program has delivered over 900 aircraft to the U.S. services, allied partners, and foreign military sales customers.

DOD is 5 years into a development effort to modernize the F-35 aircraft's capabilities and is considering options for modernizing the F-35's engine.

This testimony discusses acquisition-related risks in the F-35 modernization efforts. It is largely based on GAO's May 2023 report ([GAO-23-106047](#)) on F-35 acquisition.

What GAO Recommends

In May 2023, GAO made seven recommendations to DOD aimed at improving Block 4 cost reporting and engine and thermal management modernization efforts. DOD concurred with three, partially concurred with three, and did not concur with one recommendation that the program set engine modernization requirements before awarding a contract. GAO previously made a matter to Congress to require Block 4 reporting until its completion. GAO continues to believe that DOD should fully implement these recommendations.

View [GAO-24-107177](#). For more information, contact Jon Ludwigson at (202) 512-4841 or ludwigsonj@gao.gov.

December 12, 2023

F-35 JOINT STRIKE FIGHTER

More Actions Needed to Explain Cost Growth and Support Engine Modernization Decision

What GAO Found

The Department of Defense's (DOD) effort to modernize the F-35's capabilities, an effort known as Block 4, continues to experience cost and schedule growth. Block 4 was originally defined as 66 capabilities and estimated to cost \$10.6 billion, with development expected to be completed in fiscal year 2026. In May 2023, GAO reported that Block 4 costs had grown to \$16.5 billion and the effort was now estimated to be completed in 2029. Additionally, DOD has added new capabilities to Block 4 nearly every year, so Block 4 is now composed of 80 capabilities. DOD's report to Congress on the Block 4 effort does not distinguish higher-than-expected costs for previously planned Block 4 capabilities from growth due to adding capabilities. Consequently, Congress does not have a clear picture of the reason for the growing F-35 modernization costs.

The Block 4 effort has also continued to experience developmental delays for important technology updates. For example, the F-35 program has yet to install Technology Refresh 3 (TR-3)—the \$1.64 billion suite of upgraded hardware and software technologies critical to enabling many future Block 4 capabilities—on production aircraft. The services will not accept aircraft until TR-3 is installed.

An F-35B Exercising Its Short Takeoff and Vertical Landing Capability



Source: © Lockheed Martin. | [GAO-24-107177](#)

The program has announced plans to upgrade the F-35's engine and is exploring options to modernize the power and thermal management system that is used to cool aircraft subsystems that generate heat. The current cooling system is overtasked, requiring the engine to operate beyond its design parameters. The extra heat is increasing the wear on the engine, reducing the engine's life, and adding a projected \$38 billion in maintenance costs over the life of the aircraft.

The program has assessed some engine and cooling improvement options but the military services have not fully defined future aircraft cooling requirements. By defining these requirements and obtaining this and other key information, DOD and the services would be more informed about performance, cost, and technical implications. Furthermore, because the original development program is scheduled to transition to sustainment and would be subject to less oversight, GAO has recommended that DOD manage the engine and thermal management modernization as a separate program, with its own distinct cost, schedule, and performance baselines.

Chairman Wittman, Ranking Member Norcross, and Members of the Subcommittee:

Thank you for the opportunity to discuss our work on the F-35 Lightning II Joint Strike Fighter. The F-35 program is a family of fifth-generation strike fighter aircraft that integrates low-observable (stealth) technology with advanced sensors and computer networking capabilities. The F-35 will be used by the Department of Defense (DOD), as well as seven international partners, to perform a wide range of missions.¹ DOD aims to procure 2,470 F-35s to replace several other aircraft used by the Air Force, Navy, and Marine Corps. To date, the program has delivered over 900 aircraft to the U.S. services, international partners, and foreign military sales customers. The program completed development of the F-35's original baseline capabilities in 2018 and is nearing the end of operational testing to evaluate whether the aircraft is operationally effective, suitable, and survivable. The program, however, is also more than a decade delayed and \$183 billion over its original plans.

DOD is now in the fifth year of a \$16.5 billion modernization effort—known as Block 4—to upgrade the F-35's hardware and software systems. DOD intends for Block 4 to help the aircraft address new threats that have emerged since DOD established the aircraft's original requirements in 2000. These Block 4 capabilities are requiring more power and cooling than anticipated, which has led the program to begin planning to modernize the already overworked F-35 engine.

This statement discusses (1) DOD's progress in developing, testing, and delivering Block 4 capabilities and risks that remain, and (2) DOD's approach to assessing the options for modernizing the F-35 engine and power thermal management system. The statement is based on our report on F-35 modernization issued earlier this year as well as prior related reports.² For those reports, in general, we analyzed data provided by the contractors, the program office, and others in DOD, and conducted interviews with DOD officials and contractor representatives. Each of the

¹Seven partner nations—Australia, Canada, Denmark, Italy, Netherlands, Norway, and the United Kingdom—contribute to F-35 development, production, and sustainment. In addition, the program currently has nine foreign military sales customers: Belgium, Finland, Germany, Israel, Japan, Korea, Poland, Singapore, and Switzerland. According to program officials, multiple additional countries are at various stages of consideration for foreign military sales.

²GAO, *F-35 Joint Strike Fighter: More Actions Needed to Explain Cost Growth and Support Engine Modernization Decision*, [GAO-23-106047](#) (Washington, D.C.: May 30, 2023), and *F-35 Joint Strike Fighter: Continued Oversight Needed as Program Plans to Begin Development of New Capabilities*, [GAO-16-390](#) (Washington, D.C.: Apr. 14, 2016).

reports provides further information on its specific objectives, scope, and methodology. In addition, we summarized information from our prior reports, including relevant recommendations and the actions DOD took to address them, where appropriate in this statement.

The work on which this statement is based was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Modernization Effort Faces Delays and Limited Transparency into Its Continued Cost Growth

The F-35 program, now 5 years into its Block 4 modernization efforts, continues to experience developmental delays to important technology updates. As Block 4 content and costs continue to grow, the program's cost reporting mechanisms have not provided a full accounting of the sources of the increases.

Modernization Capabilities Continue to Be Delivered Late

As we reported in May 2023, the F-35 program's schedule for installing Technology Refresh 3 (TR-3)—the \$1.64 billion suite of upgraded hardware and software technologies that will enable many future Block 4 capabilities—on production aircraft was at risk for further delays.³ The program moved ahead with the decision to begin installing TR-3 components in Lot 15 production aircraft in February 2023 to help TR-3 installation stay on schedule, even though it had less time to ensure the related software was ready for production. As a result, we reported that TR-3 software fixes were ongoing, but that the program had less time to resolve them to achieve its schedule goals. Program officials, however, stated that DOD will not accept any TR-3 enabled aircraft until those fixes are completed.

The program also continued to experience late Block 4 capability deliveries due to software development delays and testing challenges, which create risk for future delays. For example, the limited availability of

³[GAO-23-106047](#).

aircraft to test Block 4 software limits the program's testing capacity. As of May 2023, the program had seven test fleet aircraft, with four devoted to TR-3 testing and three able to test Block 4 capabilities. The program is aware of this testing limitation and plans to incorporate additional test aircraft for a total of 14 flight test aircraft for testing Block 4 capabilities. However, officials told us that schedule risk remains due to competing testing priorities, even with future aircraft additions to the test fleet.

Capability deliveries have also been a problem throughout the Block 4 program. For example, for the January 2022 software release, Lockheed Martin delivered two of the five planned Block 4 capabilities on time, with the other three capabilities delayed. Similarly, of the six capabilities that were delayed in 2021, three had not been delivered as of March 2023, according to program officials.

Evolving Content of the Modernization Program Obscures Reasons for Cost Growth

In May 2023, we reported that F-35 Block 4 and TR-3 modernization costs continue to grow. The program originally defined the Block 4 modernization effort in 2016 as 66 capabilities. The original baseline cost of the effort was \$10.6 billion. As of May 2023, the F-35 program estimated that Block 4 development costs had increased to \$16.5 billion.⁴ Program officials attributed recent cost growth to the inclusion of new capabilities into the content of Block 4. Additionally, we found that TR-3 development costs grew by \$30 million since August 2021.

The program has continued to change the content of Block 4, which has also affected the overall schedule, expanding it by 3 years. Since originally establishing the program with the goal of delivering 66 capabilities by 2026, the program has added new capabilities into the content of Block 4 nearly every year, while also removing others. As of May 2023, the program expected Block 4 to be composed of 80 capabilities and extended the completion date through fiscal year 2029, 3 years later than it originally planned.

As the content of Block 4 has grown beyond the originally planned capabilities, the cost estimation reporting mechanisms used by the program have not provided visibility into modernization cost growth versus increased cost due to adding new capabilities. In May 2023, we found that the program's three cost-reporting mechanisms for tracking

⁴[GAO-23-106047](#).

Block 4 cost growth do not address our best practices for cost estimating because they do not explain cost variances experienced with developing capabilities.⁵ Specifically, none of the mechanisms report on cost differences between original estimates and the actual costs for developing capabilities. Without adequate visibility into modernization cost growth over time in a program with regularly changing content, the amount of cost growth attributable to development of the original capabilities versus growth due to added capabilities is not clear.

To address this issue, in May 2023, we recommended that DOD ensure the F-35 program office report to Congress on cost differences between original estimates and actual costs for a defined group of modernization capabilities over time.⁶ DOD concurred with this recommendation and stated that it would evaluate different methods of grouping capabilities to support annual reporting of cost differences between the original estimates and actual costs.

Underscoring these challenges is that DOD has managed the complex Block 4 effort as part of the F-35 baseline program, which has made monitoring progress and oversight challenging. The F-35 baseline program is planning to enter full-rate production and transition to sustainment in March 2024.⁷ At that point, the F-35 program, and the Block 4 effort that is managed within this program, will no longer be subject to certain laws and policies related to oversight development programs. For example, some of the oversight tools—such as cost, schedule, and performance baselines—that are established by programs that follow DOD’s major capability acquisition pathway would not be

⁵[GAO-23-106047](#). The Block 4 cost estimate does not document, explain, or review any variances between planned costs and actual costs. In addition, the program’s annual Block 4 report to Congress does not compare modernization costs against original estimates, or document, review, or explain any variances between planned and actual capability costs. Lastly, the program’s frequent changes to the Block 4 baseline reduce the effectiveness of Earned Value Management as a tool for assessing Block 4 cost performance and does not document, review, or explain any variances between estimated and actual capability costs.

⁶[GAO-23-106047](#).

⁷We have also reported on F-35 sustainment challenges, including delays setting up military service depots (i.e., facilities to complete the most complex repairs), inadequate equipment to keep aircraft operational, and maintenance and supply delays affecting aircraft readiness. These challenges have in part led to the F-35 fleet mission capable rate—the percentage of time the aircraft can perform one of its tasked missions—being far below program goals. For example, F-35 fleet mission capable rate was about 55 percent in March 2023. See *GAO, F-35 Aircraft: DOD and the Military Services Need to Reassess the Future Sustainment Strategy*, [GAO-23-105341](#) (Washington, D.C.: Sept. 21, 2023).

required for Block 4.⁸ As we previously noted, the Block 4 effort is expected to continue through at least 2029 and has already experienced cost increases and schedule delays.

In April 2016, we recommended that the program manage Block 4 modernization as a separate program from the F-35 baseline program, in part, to provide more visibility and to hold the program accountable for meeting cost, schedule, and performance goals.⁹ DOD did not concur with our recommendation and continues to manage Block 4 as part of the F-35 baseline program. Congress subsequently required reporting on Block 4, which met the intent of our recommendation.¹⁰ However, that reporting requirement ended in March 2023.¹¹ In May 2020, we made a matter for congressional consideration that Congress extend these reporting requirements until all Block 4 capabilities are fielded.¹² The matter is currently pending consideration by Congress.

Program Lacked Key Details to Support Engine and Thermal Management Modernization Decision

In May 2023, we reported that the F-35 program's analysis of options for modernizing the engine and thermal management system to reduce sustainment costs, improve engine life, and enable future F-35 capabilities did not contain key details.¹³ For example, we reported that it had not fully defined the power and cooling requirements the engine and related components will need to support capabilities beyond those planned through 2035. Furthermore, the program office had not fully assessed the costs and some of the technical risks of the different engine and thermal management system upgrade options. Finally, we found that

⁸10 U.S.C. § 4214(a)(1) ("The Secretary of a military department shall establish a baseline description for each major defense acquisition program and for each designated major subprogram under the program") and DOD Instruction 5000.85, Major Capability Acquisition (Aug. 6, 2020) (Change 1, Effective Nov. 4, 2021).

⁹[GAO-16-390](#).

¹⁰Pub. L. No. 114-328, § 224(d).

¹¹Pub. L. No. 114-328, § 224(d).

¹²GAO, *F-35 Joint Strike Fighter: Actions Needed to Address Manufacturing and Modernization Risks*, [GAO-20-339](#) (Washington, D.C.: May 12, 2020).

¹³[GAO-23-106047](#).

the efforts to modernize the engine and cooling system needed additional oversight.

Current Aircraft Cooling System Demands Exceed Its Original Design

In May 2023, we reported that the demands of the power and thermal management system (PTMS) that cools the aircraft's subsystems exceed the system's original design.¹⁴ The PTMS, a system designed by a Lockheed Martin subcontractor, uses air pressure from the engine to provide cooling to aircraft subsystems that generate heat, such as the radar, to ensure they do not overheat and fail. It is a complex subsystem that includes the equipment necessary to provide aircraft main engine start, emergency power, cockpit conditioning, equipment cooling, and some electrical power.

Because the original estimates of the need for cooling proved to be incorrect, the PTMS uses more air pressure from the engine to cool subsystems than originally specified in the requirements, which is reducing the life of the engine and increasing costs. These cooling problems will only get worse as the program adds new capabilities to the aircraft. Modernization capabilities—including Block 4 capabilities already installed and future ones planned through 2035—require even more cooling capacity and air pressure than the PTMS and the engine can support, respectively. In total, the program has already added \$38 billion to the program's life-cycle cost estimate because of these cooling challenges, largely due to the increased wear and tear on the engine.

The program determined that it must upgrade the PTMS by 2029 to enable capabilities planned through 2035 and upgrade the engine to reduce life-cycle costs.

F-35 Program Did Not Fully Assess Modernization Risks, Costs, or Requirements

In May 2023, we reported that the F-35 program evaluated different options for modernizing, or upgrading, the PTMS and the engine to address the need for additional cooling capacity, restore engine life, and reduce life-cycle costs.¹⁵ The program office completed what it refers to

¹⁴[GAO-23-106047](#).

¹⁵[GAO-23-106047](#).

as the Business Case Analysis in March 2023. According to program officials, they intended for the analysis to provide the services with information to help them make engine and PTMS modernization decisions. They evaluated three preselected options for improving power and cooling by upgrading the PTMS as well as modernizing or replacing the engine:

- the current F135 engine with an upgraded PTMS,
- an upgraded F135 engine with an upgraded PTMS, and
- a fully redesigned engine with an upgraded PTMS.

For each category above, the program also evaluated different upgrades to the PTMS.¹⁶ Two of these upgrade options enhance the existing PTMS to varying degrees and one option is a totally redesigned PTMS. Each engine and PTMS combination presents different trade-offs based on levels of commonality, cooling capacity, costs, schedules, and other factors. Officials explained that some future capabilities will also place increased demands on other systems, such as the electrical power system, and may require an upgrade to the fuel thermal management system, another system that fuels the engine and removes excess heat from subsystems.¹⁷

We found that the program's assessment did not meet our definition of a business case analysis and the program did not complete an analysis of alternatives.¹⁸ As a result, we compared the program's analysis with general acquisition leading practices, such as those from our Cost

¹⁶The analysis compared 20 engine and PTMS combinations. However, not all were feasible options due to the modernization timelines.

¹⁷According to program officials, if the fuel is too hot, it will not be used effectively to cool engine components.

¹⁸The analysis of alternatives—normally conducted during the Materiel Solution Analysis phase for major defense acquisition programs—is a key input to the Capability Development Document, and supports the materiel solution decision at milestone A. An analysis of alternatives may be conducted at comparable points for other Adaptive Acquisition Framework pathways as appropriate. See Department of Defense, Office of Secretary of Defense, Cost Assessment and Program Evaluation, *Analysis of Alternatives Cost Guide* (Jan. 12, 2022).

Estimating and Assessment Guide and Technology Readiness Assessment Guide.¹⁹

In doing so, we found analytical gaps in the program’s comparative analysis—in areas such as unaddressed technical risks and cost estimating—meaning that the military services’ decisions were not informed by this key information.

- **Technical risks.** The program did not fully assess the technical risks associated with the modernization of the engine, PTMS, and other related systems. The program’s comparative analysis did not include an assessment of the technology readiness for the various engine and thermal management modernization options or for the combined engine and PTMS options integrated as a system.²⁰ Furthermore, officials said that some of the modernization options’ technologies were immature. According to program officials, there was a detailed understanding of the maturity level of each engine option, but not for all modernization aspects such as the PTMS. Program officials told us that most subcomponents of engine modernization are what they consider to be mature. However, the subcomponents of PTMS modifications are much less mature. If these technologies are not matured by the start of development, the program risks moving forward with an unstable design that can cause cost increases and schedule delays.
- **Life-cycle cost estimating.** The program’s analysis did not capture all the costs of each modernization pathway. While program officials said that they considered the cost estimates for the engine upgrade options to be complete, the program had not developed cost estimates for the PTMS upgrade options. Additionally, while the program’s cost estimates included the costs to integrate each engine option onto the aircraft, the additional integration costs associated with increasing the cooling capacity of the PTMS were not considered.

¹⁹GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Program Costs*, [GAO-20-195G](#) (Washington, D.C.: Mar. 12, 2020); and *Technology Readiness Assessment Guide: Best Practices for Evaluating the Readiness of Technology for Use in Acquisition Programs and Projects* [Reissued with revisions on Feb. 11, 2020.], [GAO-20-48G](#) (Washington, D.C.: Jan. 7, 2020).

²⁰Technology readiness assessments evaluate the technical maturity of a technology at a specific point in time for inclusion into a larger system. They serve as the basis for realistic discussions on how to address potential risks as programs move from early research and technology development to system development and beyond.

We previously found that when integration costs and risks are not understood, programs risk incurring additional costs.²¹

- **Independent cost estimates.** According to program officials, they requested that the Office of the Secretary of Defense for Cost Assessment and Program Evaluation conduct an independent cost estimate that was due in the spring of 2023. However, the F-35 program office had not finished assessing all costs to inform this estimate at the time of our May 2023 report. The program also did not have cost estimates for numerous aspects of thermal management modernization, including breakdowns of the PTMS upgrade options. Without an independent cost estimate encompassing all engine and related systems' modernization costs, decision makers lack insight into the true potential costs.

Finally, we found that the military services had not established requirements for engine and thermal management modernization to guide decisions on which PTMS option to select. According to program officials, the military services will define their own requirements, or the future capabilities needed from the aircraft, which will dictate the amount of power and cooling the engine and PTMS, respectively, will need to support. We found that while the program generally knew the cooling capacity it would need to support known capabilities through 2035, program officials stated that the military services had not validated those capabilities as performance requirements, so they are notional. Until the military services do so, the program is limited in determining what additional power and cooling is needed to support capabilities through 2035. Furthermore, it is unclear how far into the future any PTMS and engine upgrades will be able to support the F-35, which the program expects to operate well into the 2070s.

Prior to the issuance of our report, in March 2023, DOD officials announced that they would pursue an upgrade to the current engine but did not identify what upgrades they intend to make to the PTMS. As part of the President's budget for fiscal year 2024, the Air Force requested about \$255 million for development and design contracts to upgrade the current engine but did not indicate what the total upgrade effort would cost. Program officials acknowledged that they were moving forward, although there were many unknowns. However, they noted that they had accelerated the process so the military departments could more quickly select a modernization option because of the need to upgrade the PTMS by 2029.

²¹[GAO-20-48G](#).

In May 2023, we made five recommendations aimed at improving the program's insights into engine and power thermal management technology risks, costs, and requirements.²²

- DOD concurred with two of our recommendations to evaluate technology readiness levels and to report on the full life-cycle costs for engine and power thermal management.
- DOD partially concurred with our recommendation to mature all critical technologies and systems prior to starting product development. It stated that it will mature technologies to the greatest extent possible, but will use a risk management process for less mature technologies to ensure they continue to mature during development.
- DOD also partially concurred with our recommendation that the F-35 program obtain an independent cost estimate for all engine and power thermal management modernization options. Officials stated that the Director of Cost Assessment and Program Evaluation conducted an independent cost estimate and comparative assessment of all propulsion solutions, but that this effort did not include an assessment of power thermal management system options.

We continue to believe that fully implementing our recommendations would provide DOD with a comprehensive understanding of F-35 engine and power thermal management technology risks, costs, and requirements.

DOD did not concur with our recommendation that the Under Secretary of Defense for Acquisition and Sustainment should ensure the military services set engine and power thermal management modernization requirements. DOD stated that setting military service requirements is not within the Under Secretary of Defense for Acquisition and Sustainment's authority and that requirements are developed, approved, coordinated, and validated through a specific DOD governance process. DOD officials explained that as approved requirements are updated, the F-35 program will reevaluate its analysis as appropriate. We recognized that it is the military services' responsibility to define their requirements. We also recognized that the F-35 program operates under the Office of the Under Secretary of Defense for Acquisition and Sustainment oversight. As a result, we revised our recommendation to assert that the Office of the Under Secretary of Defense for Acquisition and Sustainment, as the oversight authority for the program, direct the F-35 program office to reevaluate its comparative analysis. We recommended that this

²²[GAO-23-106047](#).

reevaluation be completed after the military services define their power and cooling requirements, and before proceeding with development of the engine and thermal management modernization effort, as appropriate.

Engine and Cooling System Modernization Efforts Need Further Oversight

In May 2023, we found that managing the engine and thermal management modernization efforts as part of the existing F-35 program would limit opportunities for oversight of this costly and complex effort.²³ At that time, F-35 program officials told us that they intended to manage engine and thermal management modernization under the existing acquisition program. Therefore, we recommended that the Under Secretary of Defense for Acquisition and Sustainment manage F-35 engine and thermal management modernization as a separate program, with its own distinct cost, schedule, and performance baselines. DOD partially concurred with our recommendation, citing that program officials were still uncertain about how they will manage engine and thermal management modernization efforts. As a result, we also made a matter for congressional consideration that Congress should consider directing the Secretary of Defense to ensure that the engine and thermal management modernization effort is initiated as a separate program, which could include designating this as a major subprogram. Congress has not yet taken action on our recommendation.²⁴

In conclusion, the F-35 remains critical to DOD's defense strategy and to its warfighters. The successful modernization of the aircraft and its systems will play a key role in keeping the F-35 relevant for decades to come. However, with Block 4 underway and engine and thermal management modernization on the horizon, DOD, the military services, and Congress are at a critical juncture.

Block 4 has proven to be complex, costly, and difficult to oversee. The changing content of the modernization of aircraft systems and the program's approach to reporting costs have made it hard to discern the cause of the cost and schedule growth. Enhancing opportunities for

²³[GAO-23-106047](#).

²⁴H.R. 2670, a Bill for the National Defense Authorization Act for Fiscal Year 2024, included a provision that would require the designation of all efforts to modernize and upgrade the existing propulsion, power, and thermal management systems of the F-35 aircraft as a major subprogram of the F-35 acquisition program.

oversight, by implementing our recommendations, could help DOD and Congress with this difficult undertaking.

Similarly, the program stands poised to begin the engine and PTMS modernization effort and could face similar challenges. This effort is also complex, costly, and critical to delivering enhanced capabilities to the F-35 users in the U.S. military services and our partners and allies around the world. By taking certain steps, as we recommended, DOD would be better equipped to make fully informed decisions and Congress would have enhanced opportunities for oversight.

After decades of development, the F-35 program is nearing completion of the baseline program and transitioning efforts to sustainment, which could lead to less formal acquisition oversight for the Block 4 effort. Taking steps now to ensure that the Block 4 and engine and PTMS efforts develop and update information to facilitate acquisition oversight—such as baseline cost and schedule estimates and performance goals—would provide a more structured way for DOD and Congress to track the progress of these important efforts.

Chairman Wittman, Ranking Member Norcross, and Members of the Subcommittee, this completes my prepared statement. I would be pleased to respond to any questions you may have at this time. We look forward to continuing to work with Congress as we continue to monitor and report on the progress of the F-35 program.

GAO Contact and Staff Acknowledgments

If you or your staff have any questions about this testimony, please contact Jon Ludwigson, Director, Contracting and National Security Acquisitions, at (202) 512-4841 or ludwigsonj@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this statement.

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