

NOT FOR PUBLICATION UNTIL RELEASED
BY THE HOUSE ARMED SERVICES
SUBCOMMITTEES ON
READINESS AND TACTICAL AIR & LAND FORCES

STATEMENT OF
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BEFORE THE
READINESS AND TACTICAL AIR & LAND FORCES SUBCOMMITTEES
HOUSE ARMED SERVICES COMMITTEE
ON
F-35 PROGRAM UPDATE: ACCOMPLISHMENTS, ISSUES, AND RISKS WITHIN THE AREAS
OF DEVELOPMENT, PRODUCTION, TESTING, FIELDING, AND SUSTAINMENT ACTIVITIES

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1. INTRODUCTION

On behalf of Lockheed Martin and the men and women that run the world's most advanced production line as well as the 13 allies and security partners, the 1,900 global suppliers and small businesses who make up this truly joint strike fighter F-35 Industrial Team, thank you for the opportunity to share the status of the F-35 program and partner with you to support this critical national security program.

This Committee has been instrumental in guiding, overseeing, and championing the F-35. I thank you for the support you have provided and I come before you today with an eagerness to share some extraordinary successes of the F-35 program as well as to transparently discuss areas of needed focus on the program.

If I leave you with three take-aways today, they are that Lockheed Martin is fully invested in:

- Reducing F-35 acquisition and life-cycle costs to create budget trade space for our customers;
- Maintaining the ever-changing and perishable technological “step ahead” of peer threats; and
- Increasing aircraft availability to ensure that this 5th Gen fleet is an ever-ready deterrent for our nation and its allies who operate F-35.

To deliver this affordability, capability, and availability, Lockheed Martin is working across all elements of production, development and modernization applying cutting-edge technology, software development, analytics, and business processes to reduce costs and improve performance. Our employees, and those throughout the supply chain, recognize our responsibility to deliver this weapon system to our warfighters with the most advanced capability and highest readiness levels to keep them safe as they protect our nation.

2. DRIVING AFFORDABILITY THROUGHOUT THE PROGRAM LIFECYCLE

I would like to directly address a major area of concern for our customers and one that Lockheed Martin believes is a focal point in need of sustained attention - operations & support (O&S) costs.

Lockheed Martin is applying the full weight of our talent and ingenuity to root out F-35 sustainment cost drivers. In the last five years, Lockheed Martin invested nearly \$400 million dollars to aggressively drive sustainment cost reduction and increase readiness performance – all while scaling the fleet. Our contract actuals demonstrate Lockheed Martin success in reducing 44% our share of Cost per Flying Hour (CpFH) in this time. Further, our proven forecasting models show another ~40% reduction in Lockheed Martin CpFH in the coming five years as ongoing investments with long lead times continue to bear results.

Our O&S affordability drive has a two-fold focus: reduce manpower and material cost. We are decreasing the people required to support and maintain the F-35 by digitally transforming through robotic process automation, streamlining flight-line operations, and establishing a financial structure to decrease sustainment labor rates by more than 20%.

We are concentrated on cost reduction in part by applying cutting-edge analytics and prognostics to improve demand planning and material forecasting and maintenance predictability. We are also instituting reliability and maintainability improvements to keep parts

on the jet longer, executing long-term agreements with key suppliers, and aggregating the total program demand to increase buying power.

We cannot accomplish sustainment affordability alone – we must attack these costs as an integrated enterprise in partnership with our customers. While O&S costs include non-addressable items, of the items we can address as a collective team, Lockheed Martin costs account for ~39% of the total O&S cost of the F-35, with the U.S. Government and Pratt & Whitney accounting for the remainder. Lockheed Martin stands ready to partner with our service customers to drive enterprise-wide affordability while scaling the fleet. We believe the most effective way to achieve these results is to establish long-term sustainment partnerships that eliminate the cumbersome annual contracting process and provide more stability for long-term investment.

Lockheed Martin is a proven entity when it comes to meeting demanding cost milestones on the F-35. We now offer a cutting-edge 5th Gen aircraft at price parity with far-less-capable legacy aircraft – an accomplishment that reflects the true might of government and industry partnering together to solve program challenges. We believe that with applied engineering discipline, focused investments, and updated contracting and management structures, we will deliver similar cost reductions and efficiencies in sustainment to what we have achieved on the production side of the program.

3. DELIVERING ADVANCED CAPABILITY TO OUTPACE ADVANCING THREATS

As we take out cost across the F-35 enterprise, we have not lost sight of our nation's adversaries who are advancing military capabilities at a rate and scale unmatched in the lifetimes of most Americans. Maintaining perishable advantage against these sophisticated, professional militaries requires capability insertion to keep pace with our adversary's technology advancements at a near-constant cadence.

Lockheed Martin met or exceeded all contractual technical capabilities for the Block 3F requirement. Now, to outpace advancing Chinese and Russian technologies, the program is focused on Follow on Modernization (FOM), the advanced capability insertion program to deliver cutting-edge warfighting technologies.

There are two notable dimensions of FOM: Block 4, which is a significant number of highly advanced capabilities and weapons, and Technical Refresh-3, (TR-3) the hardware providing additive processing power, memory, and open systems architecture upon which Block 4 capabilities depend. And while we have made progress on these advancements, both Block 4 and TR-3 need considerable attention – although in different ways.

TR-3 is experiencing cost overruns caused by supplier challenges and COVID impacts. As the prime contractor responsible for this program, Lockheed Martin fully owns this issue and our most senior leadership is tracking these deliverables directly. We have conducted a full TR-3 root cause analysis and instituted a robust remediation plan. In response to this challenge, we recently waived ~\$60M in fees in order that those funds can augment TR-3/Block 4 development. And, we have deployed additional engineering and management talent to ensure we remain on the critical path to Lot 15 TR-3 insertion.

Block 4 has been executing to plan but is unfortunately suffering from unexpected delays caused by under-funding. Lockheed Martin is working with our customers to establish sufficient funding to continue integral development activities to advance the F-35's capability and outpace

advancing threats. Block 4 capabilities are in ongoing development cycles and, to stay in front of adversary technological developments, require reoccurring annual funding.

While much progress on the F-35 capability advancement occurs in partnership with our government customers, Lockheed Martin is also advancing and demonstrating several significant capabilities above and beyond that which is required in the performance of a modernization contract.

Lockheed Martin is partnering with our customers to propel the development of sophisticated technologies needed to prosecute peer warfighting against some of the most vexing Chinese and Russian threats. We're investing Lockheed Martin dollars alongside our customer investments to fuel fusion and sensor management for advanced mobile threats, collaborative targeting, external carriage flexibility, advanced weapons integration, and embedded training pathways to Live Virtual Constructive training. We are also developing and demonstrating secure low probability of detect and intercept line-of-sight and beyond-line-of-sight communications using existing apertures, integration with nano satellite mesh networks, fused F-35 sensor information with national ISR data, and proven capability to track ballistic and hypersonic weapons in support of both Joint All Domain Operations (JADO) and Joint All Domain Command and Control (JADC2).

To date, the F-35 has successfully integrated with the Aegis Missile Defense system, a High Mobility Artillery Rocket System (HIMARS), the Integrated Air and Missile Defense Battle Command System (IBCS), and most recently in partnership with the Missile Defense Agency and U.S. Air Force, we successfully connected an F-35, U-2, and a multi-domain ground station. These demonstrate the information advantage of making the F-35's integrated and fused sensor suite available to other airborne, ground, space, surface and even subsurface warfighters.

Lockheed Martin investments are shortening sensor to shooter engagement timelines, increasing high-value target detection, and underpinning JADO. They will offer our commanders the ability to port the F-35's capabilities to the entire Joint Force to enable networked warfighting, or the flexibility to close kill chains organically where threats preclude long-range, multi-platform responses. In either case, they work to provide the lowest cost-per-effect necessary to deter our nation's most sophisticated adversaries.

It is worth noting that these capabilities – along with those being funded by our government customers – are being integrated into a fleet that is present today, in numbers. This tangible and capable fleet weighs heavily in tipping our adversaries' daily calculus against aggression. Should deterrence fail and that calculus change, it is this backbone fleet capacity that will offer the decisive edge to our men and women called into battle against our nation's proficient adversaries.

4. INCREASING AVAILABILITY ACROSS A GROWING FLEET

For the warfighter to achieve their mission we must ensure that there is an ever-ready deterrent. The fact remains that over the last 18 months readiness metrics on F-35 have steadily trended in a positive direction, all this while adding 120 aircraft to the fleet in 2020 and 134 in 2019. The F-35 is proven to be more reliable than 4th Generation aircraft with a mean flight hour between failure (MFHBF) rate - the time that parts remain on the aircraft before needing to be repaired - more than twice that of a 4th Generation weapons system.

Readiness rates continue to rise across the fleet. The U.S. Air Force recently returned from 18 consecutive months in the CENTCOM Area of Responsibility (AOR) where they flew more than 1,300 sorties, with an average Mission Capable (MC) rate of 73.5% with many periods of time operating at 80% – 90%, and even 100% MC rate at some points.

The fact is that to deliver an initial operational capability, trades were made across the enterprise early in the program, and today we are playing catch up on sustainment. Lockheed Martin is working closely with our customer to accelerate depot activations for 68 repair lines five years ahead of plan. We have completed 32 of the 68 workloads with an additional 11 planned for this year and the balance to be completed and repairing at rate by the end of 2024. Lockheed Martin is also applying the full force of its supply chain to drive down cost by aggregating sustainment demand with production orders and further enabling cost reduction objectives.

Expanding F-35 component repair capacity, in the very near term, is essential to improving readiness. Our Public Private Partnerships (PPP) are enabling Organic Depot repair and are the centerpiece of our success. As the fleet expands and flying hours increase, the demand for repair will outpace the organic depot capacity, and without adding supply chain and international capacity to the repair network, the current component repair backlog will grow. Lockheed Martin is 100% committed to F-35 Public-Private Partnerships (PPP) and Title 10 requirements, and we see these Industry/Depot PPP as a proven win-win strategy for sustainment moving forward.

We have also made significant progress in partnership with our customers on the transition from the Autonomic Logistics Information System (ALIS) to the Operational Data Information Network (ODIN). Our shared goal is continue improving speed, minimizing hardware footprint, reducing required labor, and enhancing user experience and overall capability. We continue to make improvements with each ALIS software update.

We are currently fielding the latest release of ALIS, which includes improvements in Air Vehicle Transfer times now measured in minutes instead of days, workflow and user interface improvements to include a new weapons load page that reduces user burden by 54%, 15 additional Electronic Equipment Logbook (EEL) software fixes, ALIS Windows 7 to Windows 10 migration, and improvements to cyber security based on Joint Operational Test Team assessments. The previous release of ALIS, which completed fielding in November 2020, included a 50% reduction in executing Air Vehicle releases, improved F-35 Portable Memory Device (PMD) download processing by 30%, and also included 50% reduction in manual EELs.

The ALIS and ODIN primary purpose remains the same – to be the F-35's logistics system for maintenance, health/diagnostics, supply chain management, and fleet management; however, ODIN is being led by the JPO and will be developed with current tools and technologies with the aim of improving on the current ALIS system. ODIN will utilize an integrated data environment and cloud-native architecture to support F-35 maintenance actions with the goal of improving maintenance efficiency in addition to inventory management and responsiveness. We are partnering with the JPO on ODIN as demonstrated by the development and successful initial deployment of the ODIN Base Kits. These units, which can run ALIS and ODIN software, are currently being procured and will soon begin wider fielding. The ODIN Base Kit is a significant reduction in the hardware logistics footprint which reduced size by 75% and weight by 90% from the current hardware (SOUv2). In addition to improving the logistics footprint, the ODIN Base Kit delivers significant overall performance improvements including PMD debrief times two times faster than the current hardware, faster screen times, and faster report processing, all of which was validated and documented by the JPO during testing at NAS Patuxent River. In the

meantime, until ODIN is fielded, we remain fully committed to ensuring ALIS meets the needs of the maintainers on the flight line. Working with the JPO, we've established a quarterly software update interval that has enabled far better responsiveness to user needs.

5. INVESTING IN THE AMERICAN WORKFORCE

The F-35 is an investment in American workers, directly employing 67,500+ individuals in high-paying, high-tech jobs, and supporting more than 254,000 jobs across the nation. The more than 1,800 U.S. based suppliers span 48 states and Puerto Rico. Of these, more than half (1,000) are small businesses and/or special category businesses. In total, the F-35 produces an annual economic impact of more than \$49 billion – proving once again that the F-35 is a true economic and innovation engine.

The F-35 demonstrates the strength of American manufacturing and is maintaining an integral production workforce in communities across the nation, while advancing key technical skills. The backbone of the F-35 workforce are the thousands of represented employees from the International Association of Machinists and Aerospace Workers (IAM) who represent the most impressive aerospace workforce in the world.

Lockheed Martin has been a champion of suppliers, especially small and vulnerable businesses, during the COVID-19 pandemic. In the first quarter of this year, we averaged more than \$430 million weekly in accelerated payments to our supply chain partners, with a focus on small and vulnerable businesses. Since the beginning of the pandemic, we have accelerated payments to more than 11,000 suppliers, including more than 6,700 small businesses across all 50 states.

And it's not just advancing manufacturing skills – the F-35 is a digital enterprise. The program is an incubator of advanced technologies in critical national security fields of artificial intelligence, cyber resilience, robotics, and advanced materials. Our teams are deploying sophisticated business practices that enable cost-effective, open digital advancements and generate state-of-the-art cyber resiliency.

We are reducing design speed and cost with digital representations, incorporating model-based systems engineering to improve design throughput and accuracy, and building integrated and robust DevSecOps tool suites for rapid and responsive software development. To augment a backlog in test capacity, we are advancing computational test to speed capability and weapons onto the jet. Lockheed Martin funds are fueling an industry-leading aeronautics cyber range, factory automation, robotics, and artificial intelligence application across the lifecycle of the program.

The ingenuity of the F-35 workforce is driving American know-how needed to compete on global economic and national security playing fields. Commitment to the F-35 program is critical to the economic health of communities across America and to our nation's high-tech global competitiveness.

6. SUSTAINED PERFORMANCE DURING THE GLOBAL PANDEMIC

Despite widespread COVID-19 impacts on many of our suppliers, we delivered 120 F-35s in 2020. We did this by working with our unions and workforce to institute an alternate work schedule to ensure the safety of our workers and continue to deliver this critical capability to the warfighter.

F-35 is the only active 5th Generation fighter production line with the capacity to produce aircraft in large numbers. Our goal for 2021 is to deliver 133-139 aircraft, depending on the COVID-19 recovery schedules of our suppliers. With additional supply chain capacity, we could deliver up to 189 aircraft per year, accommodating increased ramp rates from the U.S. Services, which we believe is essential to achieving the full program of record and delivering the capability needed for the United States to maintain its competitive advantage around the world.

As we ramp up production with your help, we remain focused on lowering cost, reducing build times, and improving on-time delivery and quality by incorporating lessons learned, process efficiencies, supply chain initiatives, facility investments, and tooling upgrades and more. We continue to invest in and align our manpower, machines, materials, and methods to ensure we meet the growing demand while achieving our cost, quality, and schedule goals.

7. ROLE IN GLOBAL DETERRENCE AND DIPLOMACY

Finally, I want to reinforce the F-35's role in alliance-based deterrence and its growing presence in U.S. global operations. When I testified before this committee in November of 2019, three U.S. Services – the Air Force, Navy and Marine Corps - and five international customers had declared initial operational capability (IOC) - the public declaration that their aircraft are mission ready and combat capable.

And today, F-35s are operating from 27 bases and ships, and 10 nations have now declared their IOC. We have delivered more than 630 aircraft to date with more than 225 currently in production. The program has more than 380,000 accumulated flight hours flying around the world. There are more than 1,300 F-35 pilots and 10,000 maintainers trained on the platform. The F-35 has flown in combat on multiple occasions with U.S. Marine Corps F-35Bs currently deployed supporting two different combat theaters. We also recently celebrated delivery of Denmark's first aircraft marking the 5th NATO nation to fly the aircraft.

President Biden has issued a call to meet accelerating global aggression by rebuilding alliances and leading with diplomacy. With 14 cost-sharing nations, the F-35 program is the largest global cooperative defense development program and a critical security burden-sharing pillar. It represents enormous international commitment with investment in excess of \$11B. The U.S. is benefiting from cost burden sharing from common capability development and economies of scale that are the hallmark of the F-35 program.

The aircraft's unprecedented interoperability amplifies deterrence and transforms how the coalition forces train, fight, and win. For example, the U.S and Israel participated in a joint training exercise last year called "Enduring Lightning," Italian and Norwegian F-35s have conducted NATO operational air policing missions and F-35s from the Netherlands are currently involved in the Deviant Dragon exercises in Europe. Current basing plans show nearly 450 F-35s across Europe by 2035, including USAF aircraft stationed in Lakenheath, which will be critical to stabilizing the highly contested Arctic/High North region, and a permanent INDOPACOM presence of more than 220 international F-35s in the region.

The F-35's role in the complex global security environment was recently underpinned by INDOPACOM Nominee Admiral John Aquilino who stated in his Congressional testimony that 5th Generation fighters are required to win in the IndoPacific command area. Additionally, General Wolters, U.S. European Commander, reinforced the need for F-35s in Europe during recent testimony to the Senate Armed Services Committee when he stated "we, in the U.S.,

need F-35s in Europe, ...to ensure that we have a competitive advantage necessary to protect our sovereign territory.”

As this committee knows, the U.S. cannot ‘go it alone’ in these expansive regions. Strengthening global F-35 alliances is a cost-effective way to pace the rapidly growing scale of sophisticated adversaries.

8. CONCLUSION

Lockheed Martin appreciates the responsibility we bear to deliver this weapon system for the U.S. and our global customers, and we are deeply committed to the long-term success of the F-35. Maintaining the technological, digital, and industrial competitiveness of the F-35 program will continue to drive Lockheed Martin. We bring a decades-long lens to this program and you can expect that we will continue to put our best talent, ingenuity, and technological focus towards the F-35. We do so with the ambition that we might exceed our customer’s expectations and that we might fortify this critical plank in our nation’s security both now and many decades into the future.

Strengthening global F-35 alliances provides cost-effective way to pace the rapidly growing scale of sophisticated adversaries. The ability to act as a sensor as well as a shooter creates an unmatched cost per effect for the U.S. military and our allies. With limited defense dollars, the ability to perform multiple functions not only saves taxpayer dollars, but more importantly, saves lives.

We respectfully request your support in ensuring a stable funding for the modernization efforts, and demanding a partnership to attack sustainment costs from an enterprise perspective, while maintaining the ramp rate toward full rate production so that together we can truly deliver on the value proposition of this critically important national security program.

Again, I thank you for the opportunity to represent the men and women of Lockheed Martin and the industry team who take great pride in providing the world’s most advanced fighter to our servicemen and women. And I thank you for your continued support of this vital weapons system and the service men and women who fly, maintain, and support them.