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BY THE COMMITTEE

Statement of
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Before the House Committee on Armed Services
Subcommittee on Readiness
Depot Modernization and Optimization

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Introduction

Chairman Garamendi, Ranking Member Lamborn, distinguished members of the Subcommittee, thank you for the opportunity to discuss the steps the Department of Defense (DoD) is taking to rejuvenate, modernize, and optimize the Organic Industrial Base (OIB). These Government-owned and Government-operated industrial activities provide core logistics capability to ensure military readiness and serve as a shock absorber when the warfighter's operational surge requirements demand an immediate and flexible response. The OIB is one of our most important strategic assets, and has been described as our nation's readiness and war-sustaining insurance policy. Simply put, the OIB must be "ready always." Your continued support for this national resource safeguards the Department's ability to deliver ready and mission capable weapon systems at the speed of war.

OIB overview

Our maintenance capabilities, at both the field and depot levels are foundational to our ability to meet the national security priorities defined by National Defense Strategy and the Secretary of Defense. Our Warfighters depend on high materiel readiness to preserve a competitive advantage and carry out their missions, whether it be deterring China or addressing advanced and persistent threats from Russia, Iran, and North Korea.

A key pillar that upholds our materiel readiness enterprise is the OIB, the network of maintenance depots, shipyards, fleet readiness centers, air logistics complexes, manufacturing arsenals, and software engineering activities that perform depot-level maintenance for the Department. Of the nearly \$38 billion DoD spent for depot-level maintenance and repair work in Fiscal Year (FY) 2020, approximately \$20 billion (53 percent) of it was performed by the OIB's 50,000+ Federal civilian employees, representing 98 million direct labor hours.

Each Service manages and operates its own organic depot-level maintenance budget, with overarching policy and oversight from the Office of the Secretary of Defense (OSD).

The OIB is primarily governed by two statutes, which contain requirements essential to ensuring that it remains effective, economical viable, and efficient. This first is 10 U.S.C. 2464, ***Core logistics capabilities***, which requires the Department to assure a ready and controlled source of technical competence that is to provide effective and timely response to a mobilization, national defense contingency situations, and other emergency requirements. By ensuring that this capability is entirely Government-owned and Government-operated, the OIB is uniquely positioned to provide the strategic depth, capability, and capacity to surge production, rapidly respond to emergent requirements, and to reconstitute capabilities necessary to support the joint force.

The second statute is 10 U.S.C 2466, ***Limitations on the performance of depot-level maintenance of materiel***, which limits the amount of funds spent on contractor-provided depot maintenance to no more than 50 percent of the funds made available in a fiscal year. This ensures the OIB is assigned sufficient depot-level maintenance workload to ensure cost efficiency and

technical proficiency, and establishes a balance between the public sector (OIB) and the private sector defense industrial base.

Challenges Facing the OIB

While the OIB continues to fully support warfighter requirements, it also faces a number of challenges, including the ongoing effects of the coronavirus disease 2019 (COVID-19) pandemic, aging infrastructure and equipment, workforce development and retention, supply chain instability, and the need to balance the sustainment requirements of new and legacy systems.

Operating during COVID-19

Like other manufacturing and industrial operations, the OIB had to confront and adapt to the effects of the COVID-19 pandemic. Since the OIB's mission is not conducive to telework, the Department swiftly implemented force health protection measures to safeguard our workforce while minimizing production delay time. Physical distancing, robust cleaning protocols, and staggered shift arrivals and turnover were employed to protect the workforce and adjust to a "new normal" for production. At the same time, the Department mitigated the effects of COVID-19 to the production schedule by surging workforce through overtime, adding additional shifts, and augmenting of workforce through the Military Services' Reserve components. These actions have allowed the OIB to keep the workforce safe while maintaining a high level of operation to help support warfighter readiness.

Aging OIB infrastructure and equipment

Years of underinvestment have led to a significant degradation in the OIB's infrastructure. Many critical facilities date from World War II or before, and depot equipment is often outdated. These deficiencies have impacted cycle times, depot efficiency, and capacity. While the Military Services are developing plans to modernize facilities and tools, these efforts will require substantial resources to meet the demands of peer threats and future warfighter needs.

OIB workforce challenges

In addition to the OIB infrastructure challenges, the Department also faces the need to ensure that our workforce is trained and skilled with the latest technology and innovation, and that there are enough personnel to match capacity to Warfighter requirements. Much of the current workforce was trained to use primarily mechanical and manual tools to maintain primarily mechanical equipment. However, the new generation of maintainers must also be skilled in areas such as software maintenance to effectively maintain the newer, more technologically sophisticated equipment that makes up a modern military. The Department faces significant competition from the private sector for personnel with these skillsets, which makes hiring and retention more difficult and leads to capacity challenges. This, in turn, sometimes forces the Department to rely more heavily on contracted maintenance, which does not provide the same responsiveness and agility as an organic workforce.

The Department appreciates the direct hire authority authorized by Congress, which helps the OIB recruit, develop, and retain critical employees. In addition, the OIB continues to partner with industry and academia to provide skills and training to connect with future recruitment.

Supply chain instability and availability of repair parts

Recent events have demonstrated that many of our critical supply chains are fragile, and the OIB's supply chain faces many of the same risks. The OIB supply chain both competes with, and depends on, commercial industry for a limited pool of microelectronics and raw materials. However, a number of mergers and acquisitions within the defense industrial base, as well as the limited commercial application of our unique items, has led to diminishing manufacturing sources and material shortages (DMSMS) and an increasing number of single-bid responses—or even no response—to DoD solicitations. Adding to this challenge is the global nature of the OIB's supply chain that, while necessary, leads to dependencies on foreign companies that may have significant ties to potentially adversarial nations.

Balancing the sustainment requirements of new and legacy systems

As newer, more complex weapons systems emerge, the OIB must balance the requirements of sustaining these new systems while continuing to support legacy systems with limited resources.

The Military Services are working to address these challenges through their force structure plans, which refocus their capabilities on those relevant to the modern battlefield and optimize the use of current resources. Congressional support for these plans is critical in ensuring that our Warfighters are postured to meet today's threats, while giving the Military Service's the flexibility to respond to those in the future.

Concurrently, the Department has strengthened life cycle sustainment planning in the new Adaptive Acquisition Framework, which supports acquiring sufficient sustainment technical data to perform organic depot maintenance or compete depot maintenance across industry providers. By ensuring sustainment and maintenance considerations are addressed at program inception, emphasized during design, and resourced simultaneously with production, we better posture ourselves for lower sustainment costs in the future.

Recent OIB Action and Investment

To address these challenges, the Department recently took action to drive data-driven decision-making, planning, and innovation while maintaining production rates. These actions support our plan to enhance OIB capability, capacity, and modernization now and in the future.

For example, in alignment with the National Defense Strategy and the recently-published Assistant Secretary of Defense for Sustainment Logistics and Materiel Readiness Strategic Plan, the Commercial Technology for Maintenance Activities (CTMA) program facilitated and supported DoD and industry-wide investments to advance technologies and processes which make maintenance and sustainment more effective, efficient, and safer.

During FY21, the Department invested \$241M, while industry partners provided \$37.5M through the CTMA cooperative agreement to advance the state of key sustainment facets such as data-driven knowledge-based decision making, artificial intelligence, advanced/additive manufacturing, non-destructive inspection, model-based system engineering and sustainment, environmental and worker safety, energy resilience and electrification, and corrosion prevention and control. These collaborative investments in advanced technologies and processes are changing the very nature of how the OIB is innovating to provide readiness to warfighters at costs targets.

Moreover, innovating and modernizing sustainment operations is now being underpinned through the development and issuance of DoD-wide policies for Condition Based Maintenance Plus, Additive Manufacturing, Robotics, and Sustainment Technology. The Department issued an aligning policy earlier this year to coordinate “Innovation and Technology to Sustain Materiel Readiness” (DoD Instruction (DoDI) 5000.92). This effort, alongside technology focus areas, is reshaping the way the Department and the Military Services are working to transition solutions to affect readiness. Highlighted in the next few paragraphs are some examples of where the DOD is innovating and integrating novel capabilities into sustainment using Additive Manufacturing, Robotics, Condition Based Maintenance Plus, and Intermittent Fault Detection.

Additive Manufacturing (AM)

Additive manufacturing (i.e. 3D printing) is a game-changing manufacturing and repair capability, and DoD is making strides to fully leverage this capability through its recent issuance of a DoD-wide AM policy, as well as broad collaboration and focused investment. The last few years have brought about a rapid acceleration of new metal and polymer additive machines and fabrication processes. Additionally, cold-spray, thermal spray, and laser AM repairs are saving DoD millions of dollars annually and improving our weapon systems’ readiness posture. Every major maintenance depot and arsenal now routinely employs AM in their normal daily activities and can rely on a host of AM capabilities to generate ready weapon systems and components. For example, the Army is using AM to manufacture energetics, the aviation community is manufacturing and flying spare parts for aircraft and building tooling to lay-up composite wing sections, and the Navy is using laser AM to repair the missile tubes on their submarines.

Robotics

In the same way that most modern manufacturing would not be possible without robotics, DoD is working to integrate and expand the use of automation and robotics in the OIB. DoD is investing in a multitude of capabilities that reduce injury and exposure to heavy and hazardous work and environments. The OIB and industry partners are working with the Advanced Robotics for Manufacturing (ARM) Institute to develop and deploy robots in the maintenance and supply depots, in the air to inspect aircraft vertical tails and communication towers, and undersea to inspect and repair ship hulls. Over the past year, multiple projects ranging from drone swarm inspections to autonomous coating applications were advanced to more rapidly and seamlessly perform 21st century readiness functions. Additionally, through a DoD-wide collaborative working group called JROBOT, Warner Robins Air Logistics Complex recently hosted the Joint Robotics for Sustainment summit showcasing over 30 different solutions currently in production and helped share lessons on how to transition technology solutions into the workforce.

The convergence of multiple OIB depots working together to apply similar maintenance innovations using robotics is best characterized by an example from Warner Robins Air Logistics Complex. They installed and are operating a robotic paint booth for sub-systems and components. When the Marine Corps Logistics Base facility in Albany, Georgia discovered this functionality they coordinated for the same system to: (1) minimize acquisition times; (2) minimize installation time; and (3) enable cross-training by Marine and Air Force personnel. The Marine Corps estimates the system should be fully installed in early 2022.

Condition Based Maintenance Plus (CBM+)

With rapid advances in sensing technologies as well as artificial intelligence and data science, all the elements to apply predictive maintenance is now within reach. DoD recently overhauled its CBM+ policy to accelerate the adoption, integration and use of these transformative capabilities, and shift from largely reactive maintenance to proactive and predictive maintenance. Military Service leadership is staunchly committed to implementing and executing CBM+ across their sea-going, aviation and ground system enterprises. Legacy platforms like the KC-135 and new systems like the Littoral Combat Ship are proving that predictive maintenance will become the new normal across DoD. Maintainers in the field and in the OIB are starting to have the weapon system material condition insight necessary to begin preventing unscheduled maintenance events and transform maintenance concepts that deliver higher availability while reducing operation and support costs.

Intermittent Fault Detection

A recent “deep-dive” study revealed that intermittent electronic faults result in 278,000 days of end-item system non-availability and approximately \$3 billion in non-value added sustainment costs annually. Currently, DoD’s vast portfolio of electronics and wiring diagnostics capabilities is suited to detect and isolate intermittence as a causal factor, but that is beginning to change. Through investment via the Small Business Innovative Research and CTMA programs, new intermittent fault detection and isolation capabilities are being fielded that can detect electronic disruptions as short as 50 billionths of a second across complex electrical components containing up to 10,000 circuit paths. A DoD collaborative working group called Joint Intermittent Testing (JIT) is currently in process of building the foundational elements necessary to expand and accelerate the use of these novel intermittent fault detection and isolation systems (IFDIS).

Mitigating Supply Chain Risk

The Department is taking several steps to counter potential supply chain disruptions. One key focus area is the Department’s actions in support of Executive Order 14017, “America’s Supply Chains,” which aims to bolster resilient, diverse, and secure supply chains to ensure both our economic prosperity and national security. The Department is currently performing in-depth supply chain assessments for several critical material types, such as castings and forgings, batteries, micro-electronics, and precision-guided munitions to identify areas for greater investment to mitigate supply chain disruptions. Other actions include:

- Leveraging data and software, from both Government and commercial sources, to proactively identify and manage potential supply chain risks for all material types;
- Updating policies and procedures to include risk-management based approaches for ensuring material availability; and

- Developing policy and procedures to enable the use of innovative technologies, such as AM, to the “widest practical extent” across the OIB.

Defense Logistics Agency (DLA) support to the Navy Shipyards

Over the past ten years, DLA has continued its integration in Navy shipyards and invested over \$36 million to improve the infrastructure and processes that store and deliver material to the shipyard production lines. This includes \$5.5 million for improved storage and retrieval systems; \$13.8M for renovation/modernization of over five buildings and associated warehouse spaces, to include a new dock extension and modernized shipping areas; and \$17.3M for military construction, including a 29,000 square-foot warehouse extension and improved systems. These investments have allowed DLA to grow square footage, provide storage in close proximity to customers, and provide safe/secure warehousing, ultimately increasing readiness, responsiveness, and efficiency.

Posturing the OIB for the Future

Beyond addressing day-to-day challenges, the Department must also posture the OIB for long-term viability and efficiency. This will require clear direction, adequate resourcing, and close collaboration among stakeholders throughout the Department. We must also institutionalize a culture of innovation and continuous improvement throughout the sustainment enterprise.

To that end, my office recently published the Logistics and Material Readiness Strategic Plan, which aligns four enduring logistics strategic goals with the National Defense Strategy and the Secretary of Defense’s priorities, and translates these goals into specific objectives and lines of effort. Included in this Strategic Plan are a number of goals and timelines specific to the OIB which will help focus our efforts to ensure that it remains resilient and responsive. Specifically, the strategic plan will ensure OIB infrastructure and equipment is effectively and efficiently meeting DoD readiness and material availability goals.

The Department is also developing a comprehensive OIB-specific strategy, which will be submitted to Congress in response to Section 359 of the National Defense Authorization Act (NDAA) for FY 2020. While my Military Service counterparts will address the plans and strategies that are specific to their Services’ requirement, the overarching Department strategy has four main strategic focus areas:

- 1) Revitalizing the OIB infrastructure;
- 2) Improving equipment modernization of the OIB;
- 3) Developing and supporting the OIB workforce; and
- 4) Continuous assessment and reporting.

Specifically, revitalizing the OIB infrastructure and modernizing equipment will shape a future OIB that has cutting-edge equipment and facilities to support efficient and effective operations. To achieve this purpose, the Military Services developed investment and infrastructure optimization plans (IOPs) in 2019 to support optimized investment approaches for the OIB. They

have now, or are in the process of finalizing refined IOPs to ensure the OIB efficiently and effectively meet the Warfighter's readiness goals.

The purpose of developing and supporting the OIB workforce focus area is to recruit and retain the appropriate skill mix and level within the OIB to optimize the capability and capacities of each production workload. The DoD will review the results of on-going Military Service assessments of hiring, training, and retention actions designed to minimize critical skills gaps to determine a specific strategy for the future.

The strategy identifies the need for continuous assessment and review through annual DoD and Congressional reporting in order to ensure the Department continues to make progress in infrastructure, equipment, and workforce. Focusing on these areas and continuously improving will provide a future OIB that is safe and properly sized with modernized facilities and equipment, supported by a trained and innovative workforce.

The strategic focus areas identified in the upcoming strategy have metrics-based goals that are specific, realistic, and measurable to determine the success of and compliance with the strategy. These metrics include monitoring building condition index (BCI), equipment age, workload execution performance, contributions to readiness, and human capital retention. These metrics will be reviewed by DoD senior leaders at all levels to assess infrastructure and equipment modernization plans, OIB performance and impacts to materiel availability, and statutory compliance. This will give them the ability to assess health and performance of the OIB and ensure its viability and readiness.

Following the submission of the strategy and the updated Military Service IOPs, the Department will begin the Section 359 requirement for a Business Case Analysis that assesses investment alternatives and recommends an optimal investment approach across the DoD to ensure covered depots efficiently and effectively meet the readiness goal with a plan to improve conditions and performance of the OIB.

Conclusion

The Department will continue to ensure that the OIB is postured to support future complex, modern, and technically advanced maintenance requirements by focusing policies and strategies on ensuring that maintenance facilities remain viable capabilities and workforce development is a continuous and enduring process. These efforts will require predictable and stable funding to succeed, and I look forward to working with this Subcommittee on this key priority.

Thank you for the opportunity to provide you an update on the steps the Department is taking to revitalize the OIB and for your continued support of this vital national strategic asset. I look forward to your questions.