The United States Air Force
Depot Maintenance Strategic Plan
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Executive Summary

The Air Force (AF) mission is to "deliver sovereign options for the defense of the United States of America and its global interests – to fly and fight in Air, Space, and Cyberspace." The AF continues to meet the challenges to provide a full spectrum of air and space capabilities that can reach anywhere in the world at anytime. Since the first depot strategy, published in August 2002, the AF's depot enterprise has transformed into a robust and modern depot level maintenance and repair capability that is a critical element to *enhancing our warfighting capabilities.*

This strategy supports the warfighter's mission by assessing and posturing capabilities and technologies in support of future workloads; leveraging partnering; maintaining world class infrastructure and processes through transformation initiatives; sustaining a viable complementary private industry repair capability; and retaining a professionally skilled workforce. These elements are essential in executing this strategic plan.

Continued depot maintenance support to our warfighter relies on a seamless integration of public and private sector competencies, achieved through an increased reliance on public-private partnering on new and existing weapon systems. To support partnership, the AF continues to improve its "world-class" organic maintenance, repair, and overhaul (MRO) operations. This requires continuation of investments in infrastructure and equipment commensurate with private industry. It also requires an investment in the AF's organic depot maintenance workforce, as well as business process improvements across the depot enterprise.

The Air Force Depot Maintenance Master Plan was developed to outline the details to achieve the AF's overarching objectives and it also supports this strategy. The strategic planning process includes an annual review of capability needs; plans to achieve those capabilities; efforts to maintain a "world-class" workforce, workplace, and processes; and legislative and/or policy changes required to implement the master plan.

Introduction

The AF remains committed to sustaining viable, modern, and technically agile Depots. The first Depot Maintenance Strategy published in August 2002 focused support to the warfighter through seamless, integrated use of public and private capability. Partnering provides the opportunity to share investments, benefiting both public and private sector. Since August 2002, the AF has taken great strides to improve our depots by investing an additional $900M from FY04 to FY09 into our depot enterprise. AF depots are recognized throughout DoD and commercial lean manufacturing businesses, as leaders in the implementation of lean thinking and Air Force Smart Operations for the 21st Century (AFSO21). In 2005, AF depots won four Shingo prizes for excellence in manufacturing and won four more Shingo prizes in 2006. The AF is utilizing these new processes and partnerships to drive down costs. In FY07, we achieved a 3.4% price reduction across our depot enterprise. This strategy will posture the depots for further improvements and sustain three viable AF depots with state of the art technology.

This strategy is framed in terms of ends, means, ways, and risk. The ends are the objectives; means are capabilities and resources; and ways are how we employ the means. The foundation of this strategy is to use required means in innovative and flexible ways to attain the desired ends with acceptable risk.

Ends: Mission, Objective, Goal

The AF's mission is to "deliver sovereign options for the defense of the United States of America and its global interests." The overarching objective of AF's depots is to ensure AF weapon systems and equipment are operational and available to support AF's missions. This strategy supports the warfigher's missions by assessing and posturing of future workloads' capabilities and technologies; leveraging partnering; maintaining world class infrastructure and processes through transformation initiatives; sustaining a viable complementary private industry repair capability; and retaining a professionally skilled workforce, focused on continuous improvement.

The AF developed an Integrated Life Cycle Management (ILCM) seamless governance process to enhance integrated leadership decisions across the enterprise. Implementing an ILCM approach, through the ILCM Executive Forum (EF), promotes an integrated assessment by the Assistant Secretary of Air Force for Acquisition (SAF/AQ), Assistant Secretary of Air Force for Installations, Environment, & Logistics (SAF/IE), Commander of Air Force Materiel Command (HQ AFMC/CC), Deputy Chief of Staff for Logistics, Installations & Mission Support (AF/A4/7), Commander of Air Force Space Command (HQ AFSPC/CC), and Deputy Under Secretary of the Air Force for Space Programs (SAF/US) senior leadership. This strategy is a vital ILCM element and will ensure AF "world class" depots remain key contributors to our Nation's defense. This strategy incorporates Expeditionary Logistics for the 21st Century (eLog21) as the overarching mechanism giving the AF flexibility required to tailor forces to meet rapidly changing operational mission requirements worldwide.

Means: Capabilities and Workloads - Current and Future

The AF strategic capabilities are focused on Global Reach, Global Power and Global Vigilance. To support AF strategic capabilities, the AF instituted an enterprise-focused depot strategic planning process, which accounts for force structure changes of older systems with newer, technologically advanced systems. This "forward looking" process ensures new technologies and processes are incorporated within the depot industrial base. This process also assesses the commercial industrial base through the AF Industrial Base Council. To ensure a responsive organic industrial base, the strategic planning process integrates the AF mission assignment process, the new strategic source of repair (SSOR) process, depot source of repair (DSOR) process, and the DoD core capability determination process into a coordinated assessment of support planning for new systems and technologies — as well as legacy systems and equipment. These sourcing decisions are important elements of a program's acquisition strategy. Making these strategic decisions early in the acquisition process will save depot stand-up costs. The result of this depot strategic planning process is a living, executable master plan for achieving the AF's overarching objective.

Many future weapon systems are commercial derivative aircraft; therefore, the AF is positioning itself to accept these workloads. The AF will obtain Federal Aviation Administration (FAA) repair station certification where necessary, yielding a viable enterprise for current and future technologies. Forward thinking such as obtaining FAA certification will ensure our depots remain highly competitive.

Fundamental to the enterprise strategic planning process is the biennial core capability determination process that defines organic core capability requirements and assesses workloads. Given limited resources, the AF must properly position depot capabilities by focusing on those requirements that are most important operationally as well as requirements where the AF possesses unique capabilities. Therefore, it is beneficial for the government to leverage commercial capability. By carefully analyzing and prioritizing any capability "gaps" between requirements and capacity, investments are focused on important operational capabilities. The master plan identifies new systems entering the inventory and the capabilities and skills required to sustain them.

To establish new technology capabilities, program managers for major weapon systems and subsystems will assess long-term technical data needs as directed by 10 U.S.C. § 2320 as amended in the FY07 National Defense Authorization Act (NDAA). Program managers will establish corresponding acquisition strategies to include the development of maintenance capabilities within the DoD or competition for contracts for sustainment of new technologies.

To ensure depots leverage advanced technologies within the depot industrial base, the Sustainment Technology Process (STP) provides a strategic systematic method to transition technology to improve depot processes. The STP creates a strategic partnership between the Science and Technology (S&T) provider and the acquisition and sustainment communities to address technology opportunities, solution planning, and programming.

Maintaining a proper balance of maintenance capabilities and a strong commercial base is the cornerstone of this strategic framework. The AF actively manages its 50/50 position by establishing policy and processes that will allow cost effective organic and contractor depot activation for maintenance workloads. The AF's 50/50 process is managed under the ILCM EF's oversight to ensure strategic decisions are analyzed with respect to current and projected 50/50 impacts.

Means: Maintain Professional Workforce

Today the AF has a highly professional skilled workforce at each depot. To ensure a highly qualified, technically competent and professional workforce in the future, the AF must continue to recruit, retain, and train through utilizing workforce initiatives and resources. Adjustments to the workforce will occur as industrial processes and infrastructure changes are continually developed and improved. As new workloads are being planned and processes for existing workloads reengineered, skill capability requirements are being assessed. The AF's workforce skill capability is continuously assessed to determine future training and skill requirements, ensuring our depot workforce is prepared for emerging technology. As a means to provide the necessary training, the Air Logistics Centers have partnered with local universities and technical schools. The NDAA for FY08 Conference Report to accompany H.R. 1585, section 329, *Reauthorization and modification of multi-trades demonstration projects*, contains a provision (sec 331) that allows the Secretary of the Air Force to conduct a demonstration project through 2013 to evaluate the benefits of promoting workers who perform multiple trades. These assessments, in conjunction with this project's outcome, look for opportunities to optimize existing technical skill capabilities, use cross-series positions, retrain, or combine series where work processes, cycle times or required manpower flexibility dictate. The AF must ensure depot maintenance managers have operational and technical skills to manage the dynamic environment of depot maintenance. Therefore, the AF continues to invest in training, both technical and managerial.

Means: Infrastructure

The depot maintenance strategy ensures AF depots are provided with the state of the art, environmentally compliant, efficiently configured, and properly equipped facilities to support existing and projected depot maintenance workload. A major element of the overall depot strategy is continued capital investments at our depots. These investments are at the enterprise level and target the highest priority needs to support the warfighter. These investments are also utilized to sustain a robust, modern, properly sized and agile infrastructure.

Prior to FY04, the level of capital investment (excluding Maintenance and Repair costs) averaged three percent (3%) of revenue or about $140M per year. Beginning in FY04 and based on the commercial benchmark of six percent (6%), the AF funded an additional $150M per year between FY04 and FY09. Congress, in the FY07 NDAA, enacted 10 U.S.C § 2476 - minimum

capital investment, based upon the AF's capital investment strategy, to invest at least six percent (6%) of the last three years of annual sales for certain depots. The AF plans to continue the six percent (6%) investment beyond FY09 to sustain infrastructure requirements, which is commensurate with the commercial sector and now required by law. The investments include the Capital Purchase Program for equipment, restoration and modernization programs for facilities, transformation opportunities and initiatives, and military construction.

Ways: Leveraging Partnering

AF continues to recognize the need to maintain robust public and private sector maintenance capabilities. As a result, partnering with the private sector to ensure access to complementary or dual depot maintenance capabilities is an integral element of the AF depot strategy. It allows the AF to simultaneously support aging weapon systems laden with obsolete hardware and software problems, while integrating support for new and advanced technology weapon systems entering the inventory.

Partnering provides the opportunity to share investments, benefiting both the public and private sectors in a variety of ways. Utilization of the same facilities and equipment to produce new systems for depot level maintenance and repair should result in reduced total life-cycle costs. The sharing of commercial or government facilities will result in reduced overhead costs. To ensure the AF leverages the benefits of public-private sector partnerships, the AF will continue:

- Implementing partnering agreements early in the acquisition cycle for new systems and equipment (pre-milestone B)
- Incorporating partnership agreements with measurable benefits (e.g., availability increases and cost reduction) for both partners into current acquisition programs and contracts
- Evaluating partnering in appropriate source selections

Ways: World Class Depot Processes

Today our AF depots are world-class depot maintenance service providers. Our depot maintenance strategy is focused on transforming our depot processes through continuous process improvement (CPI) and logistics transformation.

AFSO21 institutionalizes comprehensive, Service-wide, strategic level CPI approach. The depot strategy utilizes the AFSO21 program to implement CPI across the enterprise, resulting in improvements to our processes and elimination of non-value-added activities and waste at our depots. CPI strategy employs a collection of tools including Lean, Six Sigma, Theory of Constraints, Business Process Redesign and others. We have already seen significant CPI results. As noted earlier, our depots in the last two years have won eight Shingo awards for excellence in manufacturing for their CPI initiatives. The AF currently has several CPI

initiatives to enable us to better meet customer needs by decreasing cycle time and reducing cost, thus getting the right equipment and supplies to the warfighter in a timely manner. Some of these CPI initiatives are:

- Repair Network Transformation (RNT). The goal of RNT is to consolidate, right size, and rationalize the AF's maintenance capability, as well as synchronize maintenance planning and scheduling at the enterprise level. Each depot will be a part of the RNT enterprise-wide repair network.

- Global Logistics Support Center (GLSC). The GLSC is designed to establish an Air Force Supply Chain Management capability that provides enterprise planning, global command and control, and a single focal point in support of logistics requirements. The GLSC will provide more responsiveness to customer support for full range of military operations.

- Purchasing and Supply Chain Management (PSCM). The PSCM initiative's primary objective is to improve the logistics supply chain management processes. PSCM is applying CPI to enhance these processes and has shown positive findings after establishing seven sustainment commodity councils. These commodity councils investigate current supply chain processes at the Air Logistic Centers (ALCs), focusing on miscellaneous aircraft parts, support equipment, landing gear, and wheel and brake systems.

- Condition-based maintenance plus (CBM+). The goal of CBM+ is to perform maintenance only upon evidence of need. CBM+ is maintenance processes that rely on a real time condition assessment of a weapon system from embedded sensors and/or external tests and measurement equipment. (CBM+) is also employing other technologies, processes and procedures to improve maintenance/logistics. The CBM+ initiative will improve maintenance agility and responsiveness, increase operational availability and reduce life-cycle total ownership costs.

- Reliability-Centered Maintenance (RCM). RCM is one of the key enablers of CBM+ and the life cycle sustainment of AF weapon systems. RCM provides a logical decision process for determining optimum maintenance approaches and establishes the evidence for both reactive and proactive maintenance tasks. RCM determines the maintenance approaches that will achieve planned metrics for materiel readiness. Continuous analysis and improvements to related processes on an ongoing basis are critical for RCM effectiveness across the life cycle.

Ways: Life Cycle Sustainment Metrics

In support of the strategy, life cycle performance metrics are critical elements used to characterize the progress in a program's achievement of its goals. As such, each weapon system program shall define, measure, report and make system decisions using appropriate performance

outcome-oriented metrics. These metrics include measures for materiel availability, materiel reliability, total life cycle system cost per unit of usage, and mean down time. The Air Force continues to incorporate these metrics in current and future acquisition strategies by establishing them early in the acquisition process and refining them throughout the life cycle.

In all cases, the metrics tracked should be aligned with the organization's strategy and objectives, as well as, provide actionable insight into how well the organization is achieving these objectives. Therefore, the OSD AT&L Depot Maintenance Working Integrated Process Team (DM WIPT) was tasked to develop a means for quantifying and reporting depot maintenance-relevant metrics for material availability, material reliability, ownership cost, and mean down time. The ultimate goal was to categorically align DoD Depot Maintenance Metrics to warfighter materiel readiness requirements. Therefore, the Air Force depots will track the following metrics to formulate a strategic assessment of individual depots:

1. Production Rate (Actual vs Planned): Measured in terms of organic production versus organic production plan.

2. Quality Defect Rate: Measured in terms of Quality Deficiency Reports (QDRs) versus the QDR standard.

3. Organic Flow Days: Measured in the actual organic flow days versus planned flow days.

4. Direct Costs: Measured in terms of direct costs at depot maintenance activity level.

5. Indirect Costs: Measured in terms of indirect costs, business operations (General & Administrative + overhead), at depot maintenance activity level.

Each of these metrics allows for the comparison of the depot plans to actual performance.

Risk: Failure to Execute, Learn, Adapt

To mitigate the risk, we must maintain and improve "world class" organic and commercial industrial bases for maintenance, repair, and overhaul operations to ensure operational requirements are met during peace and war-time missions. Our success is contingent upon the ability of our people and organizations to adopt new, relevant operational concepts and processes, suitable to the dynamics of an integrated strategic enterprise. To succeed, the AF must continuously validate and update our strategy across the ends, means, ways, and risk framework.

Summary

The AF requires a robust depot MRO capability to support its air, space and cyberspace force of the 21st Century. This capability relies on a seamless integration of public and private sector competencies, achieved through an increased reliance on public-private partnering on new and existing weapon systems. To support its portion of the partnership, the AF continues to maintain and improve its "world-class" organic MRO operations to ensure they are sized to support operational requirements in peace, contingencies, humanitarian operations and war, i.e., across the spectrum of conflict. This requires maintaining current infrastructure investments at a sustained level of investment that is appropriate and commensurate with private industry. It also requires continuous investment in the AF's organic depot maintenance workforce, as well as continuous process improvement.

Expected outcomes of the AF Depot Maintenance Strategy include a professional skilled workforce; improved maintenance throughput and quality; sustained "world class" infrastructure; reduced and better-controlled cost; transformed processes; postured strategic enterprise workload capabilities; leveraged partnerships with the private sector; continued viable industrial base; and ensured compliance with policy and law.