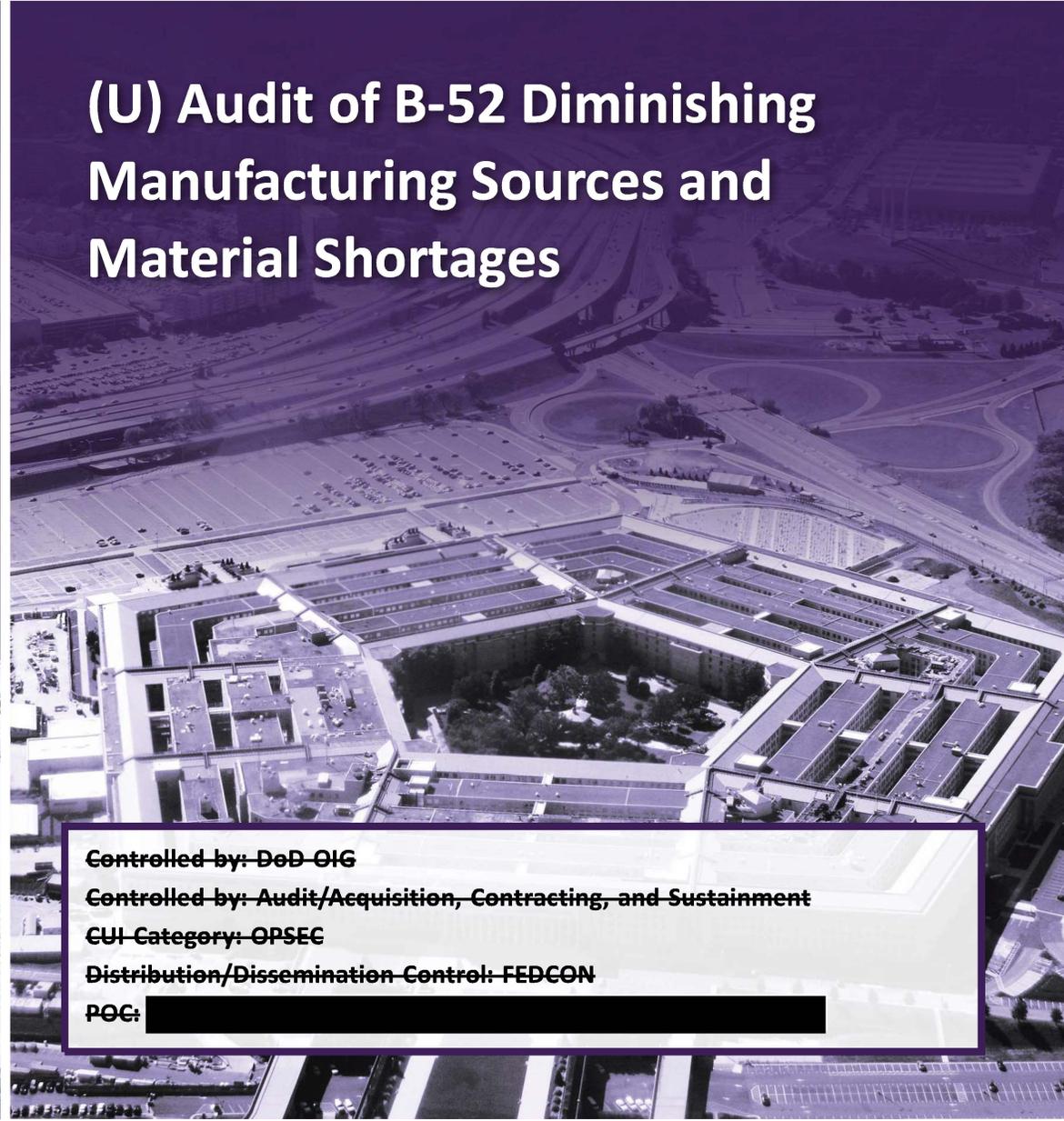


CUI

# INSPECTOR GENERAL

*U.S. Department of Defense*

NOVEMBER 28, 2023



## (U) Audit of B-52 Diminishing Manufacturing Sources and Material Shortages

**Controlled by: DoD-OIG**

**Controlled by: Audit/Acquisition, Contracting, and Sustainment**

**CUI Category: OPSEC**

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**POC:** [REDACTED]

INTEGRITY ★ INDEPENDENCE ★ EXCELLENCE

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# (U) Results in Brief

## (U) Audit of B-52 Diminishing Manufacturing Sources and Material Shortages

November 28, 2023

### (U) Objective

(U) The objective of this audit was to determine whether the Air Force effectively managed diminishing manufacturing sources and material shortages (DMSMS) for the B-52 strategic bomber to prevent and respond to spare part shortages.<sup>1</sup>

### (U) Background

(U) The last B-52 was delivered in 1962 with a projected lifespan of 20 years. However, because the B-52 remains a critical asset in national defense, the Air Force plans to keep its fleet of 76 B-52 aircraft in service until 2060. Therefore, the Air Force must continue to obtain spare parts through the B-52 supply chain to keep the aircraft in service. The Air Force is planning to invest \$48.6 billion into modernization of the B-52.

### (U) Findings

(U) The B-52 System Program Office (SPO) did not effectively manage DMSMS for the B-52 to prevent and respond to spare part shortages.

(U) This occurred because the SPO did not:

- (U) sign its management plan for DMSMS, or
- (U) develop a complete list or bill of materials of B-52 spare parts.

(~~CUI~~) The SPO's lack of DMSMS management contributed to spare part shortages, which caused a decrease in the [REDACTED]

<sup>1</sup> (U) DMSMS refers to the loss, or impending loss, of the last known manufacturer of critical components for production or repair parts.

### (U) Findings (cont'd)

(~~CUI~~) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

### (U) Recommendations

(U) We made three recommendations to address the findings in this report, including a recommendation that the Program Executive Officer, Bombers, require that the B-52 System Program Manager, SPO, establish and implement:

- (U) a signed DMSMS management plan for the B-52 to proactively manage B-52 spare parts in accordance with DoD Manual 4140.01, volume 3, and
- (U) a process to develop and periodically update a bill of materials for all B-52 spare parts on the aircraft to reflect updates to both legacy and modernized spare parts.

### (U) Management Comments and Our Response

(U) The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics), responding for the Program Executive Officer, Bombers, agreed with the three recommendations. However, the comments for two recommendations lacked sufficient detail describing the actions their office plans to take to implement the recommendations. Therefore, those recommendations

<sup>2</sup> (U) Cannibalization is removing working spare parts from an aircraft and installing those spare parts on a second aircraft to make the second aircraft operational.

<sup>3</sup> (U) The Air Force Global Strike Command establishes AA rates and not actual required aircraft numbers. The number and percentage of aircraft were determined based on our own calculation. We multiplied the standard and actual rates by the total aircraft fleet numbers for each fiscal year.



# (U) Results in Brief

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## *(U) Audit of B-52 Diminishing Manufacturing Sources and Material Shortages*

### ***(U) Comments (cont'd)***

(U) remain unresolved. We request that the Program Executive Officer, Bombers, provide additional comments on the unresolved recommendations within 30 days.

(U) The remaining recommendation is resolved but will remain open. We will close the recommendation once we verify that the B-52 SPO includes the development of the bill of materials in the annual Weapon System Support Program reviews.

(U) Please see the Recommendations Table on the next page for the status of the recommendations.

**(U) Recommendations Table**

(U) Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
Program Executive Officer, Bombers	1.a, 1.b	1.c	None (U)

(U) Please provide Management Comments by December 28, 2023.

**(U) Note:** The following categories are used to describe agency management’s comments to individual recommendations.

- **(U) Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- **(U) Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- **(U) Closed** – DoD OIG verified that the agreed upon corrective actions were implemented.





**OFFICE OF INSPECTOR GENERAL**  
**DEPARTMENT OF DEFENSE**  
4800 MARK CENTER DRIVE  
ALEXANDRIA, VIRGINIA 22350-1500

November 28, 2023

**MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION  
AND SUSTAINMENT**

**DIRECTOR, DEFENSE CONTRACT AUDIT AGENCY**  
**DIRECTOR, DEFENSE CONTRACT MANAGEMENT AGENCY**  
**DIRECTOR, DEFENSE LOGISTICS AGENCY**  
**AUDITOR GENERAL, DEPARTMENT OF THE AIR FORCE**

**SUBJECT: (U) Audit of B-52 Diminishing Manufacturing Sources and Material Shortages  
(Report No. DODIG-2024-029)**

(U) This final report provides the results of the DoD Office of Inspector General's audit. We previously provided copies of the draft report and requested written comments on the recommendations. We considered management's comments on the draft report when preparing the final report. These comments are included in the report.

(U) This report contains two recommendations that are considered unresolved because despite agreeing with the recommendations, the Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics), responding for the Program Executive Officer, Bombers, did not fully address the recommendations presented in the report. Therefore, as discussed in the Recommendations, Management Comments, and Our Response section of this report, the recommendations remain open. We will track these recommendations until the Program Executive Officer, Bombers, has agreed to take actions that we determine to be sufficient to meet the intent of the recommendations and management officials submit adequate documentation showing that all agreed-upon actions have been completed.

(U) This report contains one recommendation to the Program Executive Officer, Bombers, that is considered resolved and open. Therefore, as discussed in the Recommendations, Management Comments, and Our Response section of this report, we will close that recommendation when the Program Executive Officer, Bombers, provides us evidence and documentation showing that they have completed all agreed-upon actions to implement the recommendation.

(U) DoD Instruction 7650.03 requires that recommendations be resolved promptly. Therefore, within 30 days please provide us your response concerning specific actions in process or alternative corrective actions proposed on the recommendations. Send unclassified responses to [audacs@dodig.mil](mailto:audacs@dodig.mil). For the resolved recommendations, please provide us documentation showing you have completed the agreed-upon actions within the estimated completion dates. Please send your documentation for the resolved recommendations as a PDF to [followup@dodig.mil](mailto:followup@dodig.mil).

(U) If you have any questions, please contact me at [REDACTED]

FOR THE INSPECTOR GENERAL:

A handwritten signature in black ink, appearing to read "Carmen J. Malone". The signature is fluid and cursive, with the first name being the most prominent.

Carmen J. Malone  
Assistant Inspector General for Audit  
Acquisition, Contracting, and Sustainment

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## (U) Introduction

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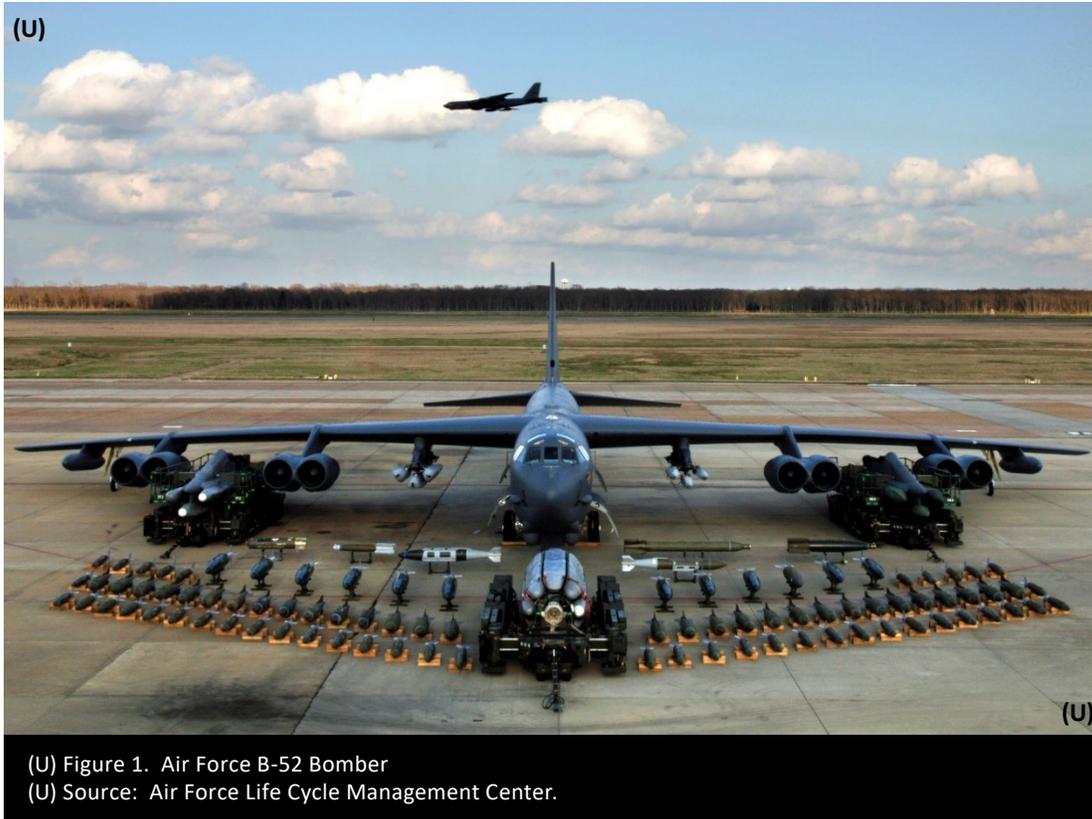
### (U) Objective

(U) The revised objective of this audit was to determine whether the Air Force effectively managed diminishing manufacturing sources and material shortages (DMSMS) for the B-52 strategic bomber to prevent and respond to spare part shortages. DMSMS refers to the loss, or impending loss, of the last known manufacturer or supplier of raw materials and other critical components for production or repair parts. The announced objective of this audit was to determine whether the DoD effectively managed the B-52 supply chain to meet sustainment requirements. See Appendix A for a discussion of the scope, methodology, prior coverage, and reason for the change to the objective.

### (U) Background

(U) The B-52 Stratofortress aircraft (B-52) is a long-range, heavy bomber that can perform a variety of missions, including strategic attack, close-air support, air interdiction, offensive counter-air, and maritime operations. The B-52 is an Air Force legacy system that is no longer in production. The B-52 entered service in 1955 with a projected lifespan of 20 years. The last B-52 was delivered in 1962 and the aircraft is currently in the sustainment phase of its life cycle. Of the 744 B-52s produced, only 76 remain in active Air Force inventory. The Air Force plans to keep its fleet of 76 B-52 aircraft in service until 2060, when the average age of the aircraft will be 100 years. Despite its age, the B-52 remains a critical asset in national defense due to its ability to adapt to emerging threats.

(U) Because of age and continued use, B-52 aircraft are experiencing stress and fatigue on airframes and components. To address those concerns, the Air Force is implementing a series of B-52 upgrades and modernization efforts. Upgrades are smaller improvements to a part or assembly that do not require much engineering or redesign. Modernization programs alter or add to the capabilities of the weapon system components, such as radar or engines. Modernization programs generally do not resolve supply chain issues, such as correcting obsolescence or diminishing manufacturing sources issues related to aspects of the weapon system that are not being modernized. The modernization efforts for the B-52 comprise 12 separate modernization programs with an estimated cost of \$48.6 billion. Because the B-52 is undergoing modernization, the B-52 is a modified legacy system. See Appendix B for the 12 modernization programs.



(U) Figure 1. Air Force B-52 Bomber  
(U) Source: Air Force Life Cycle Management Center.

### **(U) B-52 Sustainment Requirements**

(U) DoD Instruction 5000.85, “Major Capability Acquisition,” August 6, 2020 (Incorporating Change 1, November 4, 2021), establishes policy and procedures that guide the acquisition and sustainment of major DoD programs and weapon systems such as the B-52. According to DoD sources, sustainment is the provision of logistics and personnel services required to maintain and prolong operations of a weapon system or program so that the weapon system or program can perform as intended for use in military operations or missions.<sup>4</sup> Life-cycle sustainment refers to all phases of the weapon system’s life and comprises the range of planning, implementation, and execution activities that support the sustainment of a weapon system.<sup>5</sup> The goal of life-cycle sustainment is to ensure the integration of sustainment considerations into all planning, implementation, management, and oversight activities associated with the acquisition, development, production, fielding, support, and disposal of a system across its life cycle.<sup>6</sup>

<sup>4</sup> (U) DoD Dictionary of Military and Associated Terms, “sustainment,” November 2021.

<sup>5</sup> (U) Defense Acquisition Guidebook, Chapter 4, “Life-Cycle Sustainment,” February 1, 2017 (Updated February 27, 2019).

<sup>6</sup> (U) B-52H—Weapon System Operations & Support Program, “Life-Cycle Sustainment Plan,” Version 1.0, February 2019.

(U) DoD Instruction 5000.91, “Product Support Management for the Adaptive Acquisition Framework,” November 4, 2021, requires program managers to develop a life-cycle sustainment plan (LCSP), which is the program manager’s plan for developing, implementing, and executing the program’s sustainment strategy. The LCSP also includes sustainment performance requirements, which are the standards and goals used to measure how achievable or attainable the sustainment strategy is and determine the overall readiness of the system. Part of the sustainment strategy includes DMSMS.

(U) Sustainment performance requirements are the measurements or indicators of the total number of weapon systems available for military commanders to use. The LCSP documents the requirements for sustainment performance, which includes aircraft availability (AA) rates. AA is the preferred statistic in the Air Force for assessing operational readiness. The Product Support Manager is required to update the LCSP every 5 years. Additionally, the LCSP contains metrics that factor into B-52 core mission requirements.

(U) One of the B-52 core mission requirements is material (spare parts) availability, and one of the metrics used to measure this is AA. Spare part shortages can negatively affect AA rates. For this audit, we focused on the B-52’s AA sustainment performance requirement. The Air Force Global Strike Command is responsible for establishing and approving the annual sustainment performance requirements for the B-52 program. The sustainment performance requirements are based on what was accomplished over the preceding 3 years. Table 1 shows the B-52 AA sustainment performance requirement as determined by the Air Force Global Strike Command.

~~(CUI)~~ Table 1. B-52 AA Sustainment Performance Requirement

<del>(CUI)</del>	FY16	FY17	FY18	FY19	FY20	FY21	FY22
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED] <del>(CUI)</del>

~~(CUI)~~ Note: [REDACTED]  
 [REDACTED] The Air Force Global Strike Command establishes AA rates and not actual required aircraft numbers. The number of aircraft was determined based on our own calculation. We multiplied the standard and actual rates by the total aircraft fleet numbers for each fiscal year.

(U) Source: Air Force Global Strike Command.

## ***(U) Supply Chain Management***

(U) Supply chain management includes all efforts to meet customer-driven spare parts requirements through the acquisition, maintenance, transportation, storage, and delivery of spare parts to customers. Two DoD manuals require DoD Components to structure their supply chain management to provide consistent and reliable support to the warfighter and develop risk management and support plans to address future supply chain requirements.<sup>7</sup> Additionally, an Air Force instruction requires program managers of new systems, subsystems, and modified systems to determine and acquire the quantity of support items.<sup>8</sup> The support items, including spare parts, are needed to meet sustainment performance requirements.

(U) The Air Force and the Defense Logistics Agency (DLA) are responsible for managing the B-52 supply chain and ensuring that spare parts are available when needed. The Air Force is responsible for managing the depot-level reparable spare parts, and the DLA manages the consumable spare parts. A reparable part is an item that, when broken, can be economically repaired while a consumable part is any item that, upon installation, cannot be economically repaired and is just replaced. Consumable spare parts are items designed to be discarded when worn, on reaching a predetermined condition, routinely, or on failure, such as a self-locking nut, an electrical wire, or an air duct hose. A depot-level reparable consists of multiple subparts or assemblies composed of both reparable and consumable spare parts. Examples include a hydraulic motor, a generator, or an electrical control box. The Air Force reported that it manages approximately 4,000 depot-level reparable spare parts and the DLA reported that it manages approximately 70,000 consumable spare parts for the B-52. Because the Air Force plans to keep its fleet of 76 B-52 aircraft in service until 2060, the Air Force must continue to obtain spare parts through the B-52 supply chain.

(U) Within the Air Force, various organizations are responsible for managing the B-52 supply chain, including the B-52 System Program Office (SPO), Air Force Sustainment Center, and Air Force Life Cycle Management Center, which are all subordinate to the Air Force Materiel Command. The Air Force Global Strike Command is also involved in the B-52 supply chain to manage some spare parts issues. The SPO is responsible for the total life cycle management of the B-52 and its modernization and sustainment, including acquisition of new capabilities, upgrades to existing systems, and depot and software maintenance.

<sup>7</sup> (U) DoD Manual 4140.01, volume 1, "DoD Supply Chain Materiel Management Procedures: Operational Requirements," December 13, 2018, and DoD Manual 4140.01, volume 2, "DoD Supply Chain Materiel Management Procedures: Demand and Supply Planning," November 9, 2018.

<sup>8</sup> (U) Air Force Instruction 63-101/20-101, "Integrated Life Cycle Management," June 30, 2020.

(U) To manage the consumable spare parts, the DLA uses the Weapon System Support Program (WSSP). The WSSP provides information to the DLA to support the Military Departments by stocking the consumable spare parts the Military Services determine are essential to maintaining weapon system availability. The Military Departments determine which weapon systems are the most important to the Military Services' missions and assign a code to each of those systems (such as the B-52). In addition, the Military Services assign a code that identifies how essential each consumable spare part is to maintaining the availability of the weapon system. (For example, code 1 is the most critical. The weapon system will not be available if a code 1 spare part breaks or wears out.) Based on those codes, the DLA develops a support strategy to ensure code 1 spare parts are available for the Military Services.

(U) The SPO is responsible for purchasing and fielding the initial spare parts associated with the modernization. Once purchased, the SPO turns the spare parts over to the Air Force Sustainment Center's 448th Supply Chain Management Wing (SCMW) to manage as part of sustainment. The 448th SCMW is responsible for buying the replenishment spares and obtaining the parts and repairs either through organic or contracted sources. The 439th Supply Chain Operational Squadron, also under the Air Force Sustainment Center, is the Air Force supply chain and product support provider, responsible for spare parts control, redistribution of spare parts, and Mission Impaired Capability Awaiting Parts (MICAP) management.<sup>9</sup>

(U) In addition, the SPO established the following 10 Integrated Product Teams (IPTs) to assist with different areas of B-52 weapon system program management.<sup>10</sup>

- (U) Systems Integration
- (U) Testing
- (U) Modifications
- (U) Sustainment
- (U) Weapons Integration
- (U) Software
- (U) Radar Modernization Program
- (U) Commercial Engine Replacement Program
- (U) Advanced Extremely High Frequency Program
- (U) Very Low Frequency/Low Frequency Program

<sup>9</sup> (U) MICAPs are spare parts needed either as a replacement or to complete maintenance on a weapon system, but for various reasons, are not available in the spare part inventory and can prevent the weapon system from completing a mission.

<sup>10</sup> (U) An IPT is a team composed of representatives from appropriate functional disciplines working together to build successful programs, identify and resolve issues, and make sound and timely recommendations to facilitate decision-making.

## (U) Finding

### (U) The B-52 System Program Office Did Not Effectively Manage DMSMS

(U) The B-52 SPO did not effectively manage DMSMS for the B-52 to prevent and respond to spare part shortages.

(U) This occurred because the SPO did not:

- (U) sign its management plan for DMSMS, or
- (U) develop a complete list or Bill of Materials (BOM) of the B-52 spare parts.

~~(CUI)~~ The SPO's lack of DMSMS management contributed to spare part shortages, which caused [REDACTED]

### (U) DMSMS as a Priority

(U) DMSMS is an increasing concern for systems like the B-52 as the service lives of DoD weapon systems are extended and the product life of complex spare parts or components decreases. DoD Instruction 4245.15, "Diminishing Manufacturing Sources and Material Shortages Management," November 5, 2020, states that DoD programs are required to establish and implement proactive DMSMS management processes throughout the life of a weapon system. According to the Defense Standardization Program Office document SD-22, "Diminishing Manufacturing Sources and Material Shortages: A Guidebook of Best Practices for Implementing a Robust DMSMS Management Program," January 2016, a BOM, which identifies all of the spare parts and quantities needed for a weapon system, is necessary to assist in identifying the spare parts that may be subject to DMSMS issues on the weapon system. Replacement spare parts for the Air Force's older aircraft are now often more expensive and more difficult to find, since many of the original manufacturers no longer exist. Companies discontinue production for some spare parts once they are no longer profitable. As the market shifts to a new technology, demand for earlier models and configurations is reduced, and the cost of supporting the technology typically escalates. Suppliers must either raise

(U) the price to maintain profit margins and offset reduced demand or terminate the product line. This results in price increases or diminished availability of spare parts as the supplier eliminates the remaining inventory. In the end, customers could pay significantly increased sustainment costs.

## **(U) DMSMS Management Was Not Effective**

(U) The SPO did not effectively manage DMSMS for the B-52 to prevent and respond to spare part shortages. Specifically, SPO officials did not:

- (U) establish a DMSMS management team or coordinate DMSMS management across the B-52 supply chain, or
- (U) identify spare parts by maintaining a complete and accurate DMSMS list.

### ***(U) DMSMS Management Team***

(U) SPO officials did not establish a DMSMS management team or coordinate DMSMS management across the B-52 supply chain. Specifically, the SPO relied on 10 individual IPTs to manage DMSMS instead of establishing a DMSMS management team as required by DoD Manual 4140.01, volume 3, “DoD Supply Chain Materiel Management Procedures: Materiel Sourcing,” October 9, 2019. Personnel from the 10 IPTs reported varying levels of activity for addressing DMSMS issues—some indicated that they relied on contractors while others worked with the 448th SCMW or the Strategic Alternate Sourcing Program Office to resolve their DMSMS issues.<sup>11</sup> The SPO did not consolidate the DMSMS information from the IPTs and none of the IPTs indicated that they collaborated with each other. Only one IPT indicated that it worked with the SPO. In addition, SPO officials did not identify additional offices involved in B-52 DMSMS management; however, we identified other activities within the DoD that also provided assistance with DMSMS issues for the B-52. Specifically, 448th SCMW officials worked with the Strategic Alternate Sourcing Program Office to identify DMSMS issues and to determine whether redesign or re-engineering efforts were needed or whether other sources were available. In addition, DLA officials obtained discontinuation notices from contractors and worked with SPO engineers to find alternate spare parts or vendors for DMSMS spare parts. The DLA also maintained a DMSMS list of spare parts it manages, which included B-52 spare parts. The SPO did not develop a team or encourage collaboration among the IPTs and other offices involved in DMSMS management for the B-52.

<sup>11</sup> (U) The Strategic Alternate Sourcing Program Office is a resource for DMSMS management and can provide assistance through analysis and resolution capabilities, as well as provide DMSMS management training.

~~(CUI)~~ Coordination across the supply chain of DMSMS issues should also involve modernization programs. Even though some modernization programs resolve DMSMS issues with the B-52, the modernization programs themselves are also subject to DMSMS as some modernized spare parts introduce supply chain risks.<sup>12</sup> According to Air Force modernization office personnel, they identify potential DMSMS issues from new B-52 spare parts that result from fielding the modernization programs. For example, the Air Force added a signal data processor group spare part to a MICAP report in October 2021 from the Combat Network Communications Technology modernization program. The spare part was identified as a DMSMS spare part before the Combat Network Communications Technology program transitioned to sustainment in June 2022. The SPO is required to work with the modernization program contractor to address any identified DMSMS issues. DMSMS spare part shortage issues will compound because the SPO has to manage modernization and legacy spare part issues simultaneously. Furthermore, the B-52 fleet is undergoing multiple modernization programs, and despite the \$48.6 billion investment cost of these modernization programs, [REDACTED]

### ***(U) DMSMS List Not Complete or Accurate***

(U) SPO officials did not effectively manage DMSMS to identify spare parts proactively to ensure a complete and accurate DMSMS list. According to DoD Instruction 4245.15, "Diminishing Manufacturing Sources and Material Shortages Management," November 5, 2020, DoD programs are required to establish and implement proactive DMSMS management processes throughout the life cycle of a weapon system that includes identifying, documenting, and mitigating DMSMS risks and issues. One way to mitigate risk is by having a list of the spare parts potentially impacted by DMSMS issues that officials can use to resolve those issues before they become spare part shortages. We requested a DMSMS list in May 2022, and SPO officials stated they did not have a list. Instead, SPO officials used the MICAP reports to identify DMSMS spare parts after a spare part shortage occurred. The Air Force used MICAP reports to identify the immediate need for spare parts not available in inventory. According to SPO officials, MICAPs are spare parts that, if not available, can prevent aircraft from flying. For example, the Air Force added a liquid level switch to the MICAP report in October 2021 because the spare part was not available due to obsolescence. Air Force officials submitted a request for engineering support to resolve the obsolescence issue; however, as of October 2022 there was no expected resolution date. The SPO did

<sup>12</sup> (U) We found one instance of a spare part within a B-52 modernization program that became obsolete. However, as DoD guidance uses DMSMS and obsolescence terms interchangeably, we are categorizing the spare part as DMSMS for simplicity purposes.

(U) not identify the spare part as DMSMS. If SPO officials had identified the DMSMS issue with the spare part before the shortage, the officials may have been able to work with the manufacturer to ensure the spare part was in stock when needed.

(U) Although a comprehensive DMSMS list did not exist in May 2022, 3 months later in August 2022, the SPO officials provided us a list that they compiled from multiple sources. However, the DMSMS list provided by the SPO was not complete or accurate. In addition, in June 2023, almost a year later, the SPO officials stated that the list did not account for all of the DMSMS issues that the SPO was working. Because the SPO did not maintain a complete or accurate list of DMSMS spare parts, it could not quantify the direct impact of DMSMS spare parts on AA. We compared a sample of 16 spare parts listed as having shortages on the MICAP reports for more than 6 months to the SPO DMSMS list. That comparison showed that the SPO DMSMS list:

- (U) included spare parts that, based on explanations in the MICAP report, did not have DMSMS issues, and
- (U) was missing spare parts that were experiencing DMSMS issues.

(U) Table 2 shows a comparison between MICAP spare parts over 6 months on the MICAP report and on the DMSMS SPO list.

~~(U)~~ Table 2. 16 MICAP Spare Parts over 6 Months

<del>(U)</del> Stock #	Description	MICAP DMSMS	SPO DMSMS	Not DMSMS
1560015763458FG	[REDACTED]			
[REDACTED]	[REDACTED]		█	█
[REDACTED]	[REDACTED]		█	█
[REDACTED]	[REDACTED]	█	█	
[REDACTED]	[REDACTED]			
[REDACTED]	[REDACTED]		█	█
[REDACTED]	[REDACTED]	█		
[REDACTED]	[REDACTED]	█	█	
[REDACTED]	[REDACTED]	█		
[REDACTED]	[REDACTED]	█	█	
[REDACTED]	[REDACTED]			
[REDACTED]	[REDACTED]			<del>(U)</del>

~~(CUI)~~ Table 2. 16 MICAP Spare Parts over 6 Months (cont'd)

<del>(CUI)</del> Stock #	Description	MICAP DMSMS	SPO DMSMS	Not DMSMS
[REDACTED]	[REDACTED]	1		
[REDACTED]	[REDACTED]	1	1	
<b>Total</b>		<b>8</b>	<b>8</b>	<b>3</b> <del>(CUI)</del>

(U) Source: Air Force SCMW, SPO, and the DoD OIG.

(U) As shown in Table 2's "MICAP DMSMS" column, 8 of the 16 spare parts on the MICAP report were the result of DMSMS issues based on the detailed explanations in the report. However, only five of those eight spare parts were included on the SPO DMSMS list. For instance, the Air Force added a flight display unit because of obsolescence issues to the MICAP report in October 2020; however, the display unit was not included on the SPO's August 2022 DMSMS list. According to the explanation in the Air Force MICAP report, the DMSMS issue on this spare part will not be resolved until March 2024. In addition, Table 2's "SPO DMSMS" column shows that 8 of the 16 spare parts on the SPO DMSMS list were included on the MICAP report. However, based on the explanation in the MICAP report, only five of those eight spare parts were impacted by DMSMS issues, meaning the remaining three spare parts were not impacted by DMSMS issues (as reflected in the last column of Table 2). For example, the SPO included a servocylinder on its DMSMS list, but the explanation in the MICAP report stated that the Air Force was waiting on the spare part due to a manufacturing issue, and not DMSMS.<sup>13</sup> According to SPO officials, they relied on Air Force supply personnel and the DLA to provide narratives explaining why a part was not supportable. In addition, the SPO reviewed the notes for the servocylinder again in June 2023 and found the part was not supportable due to material failures and inability to find replacement material.

~~(CUI)~~ The absence of an accurate and complete DMSMS list from the SPO may have contributed to the Air Force cannibalizing other aircraft to obtain spare parts to have aircraft available to complete missions. As of August 2022, the Air Force had [REDACTED] were involved in cannibalization actions during FY 2022.<sup>14</sup> SPO officials stated that AA rates would be lower if the Air Force did not cannibalize other aircraft to obtain spare parts. According to SPO officials,

<sup>13</sup> (U) Servocylinders are used in hydraulic test simulators to complete test structures with static and dynamic test forces.

<sup>14</sup> ~~(CUI)~~ Only [REDACTED] obtained by cannibalization from other aircraft had a National Item Identification Number or National Stock Number that would allow us to perform a comparison between the cannibalization list and the DMSMS lists.

(~~CUI~~) one spare part may be obtained by cannibalization to keep multiple aircraft available, which masks the spare part shortage. We found that only 15 of 73 spare parts on the cannibalization list were also on the MICAP report. For example, a control display unit was added to the MICAP list in January 2022 with DMSMS issues. The Air Force has obtained this spare part by cannibalization 18 times since January 2022 and the Air Force does not expect the spare part to be available until December 2024. Because this spare part has DMSMS issues, there is not a supplier available and there will be a delay in obtaining the spare part. We also found that only 10 of 73 spare parts sourced by cannibalization were on the SPO DMSMS list. As a result, there may be delays in procuring the DMSMS spare parts because the Air Force may not be aware of shortages of the spare parts sourced by cannibalization.

**(U) Aircraft Availability Requirements Not Met**

(~~CUI~~) The B-52 Program was not meeting its AA requirements. [REDACTED]  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]

(~~CUI~~) Table 3. B-52 AA Rates and Aircraft

( <del>CUI</del> ) Fiscal Year	AFGSC Standard Rate	Actual Rate	Total Aircraft in B-52 Fleet	AFGSC Standard Aircraft Number	Actual Number of Aircraft	Auditor Estimated Aircraft Shortage Number
2016	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2017	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2018	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2019	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2020	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2021	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
2022	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED] ( <del>CUI</del> )

(U) Source: Air Force Global Strike Command\*.

\* (U) The Air Force Global Strike Command establishes AA rates and not actual required aircraft numbers. The number of aircraft was determined based on our own calculation. We multiplied the standard and actual rates by the total aircraft fleet numbers for each fiscal year. We then subtracted the actual number of aircraft from the standard number to determine the shortage.

## **(U) Need for a Signed DMSMS Management Plan and BOM**

(U) The SPO did not effectively manage DMSMS for the B-52 to prevent and respond to spare part shortages because the SPO did not sign its management plan for DMSMS or develop a complete list (or BOM) of the B-52 spare parts for the aircraft. The B-52 Product Support Manager stated that the SPO used IPTs to manage DMSMS, and had no plan to form a DMSMS management team. In addition, the SPO did not develop a B-52 BOM listing all of the necessary spare parts. The B-52 Product Support Manager stated that he did not know the total number of B-52 spare parts. The lack of a B-52 BOM prevented SPO officials from performing a full, annual WSSP coding review. The purpose of the coding reviews is to prioritize spare parts that are or will be needed for the weapon system so that the DLA can ensure those spare parts are available.

### **(U) Signed DMSMS Management Plan**

(U) The SPO did not have a signed DMSMS management plan as required by DoD and Air Force policy. Specifically, DoD Instruction 4245.15, “Diminishing Manufacturing Sources and Material Shortages Management,” November 5, 2020; Air Force Materiel Command Instruction 20-105, “Diminishing Manufacturing Sources and Materiel Shortages (DMSMS),” November 16, 2017; and DoD Manual 4140.01, volume 3, require a DMSMS management plan that includes the formation of a DMSMS management team and designation of a focal point to coordinate actions in the DMSMS management plan and to program and budget for those actions.<sup>15</sup> During the course of our audit, SPO officials stated that they began developing a DMSMS management plan. However, according to SPO officials, due to resource limitations the plan was not completed or available when we asked for an update in March 2023. The SPO provided a draft DMSMS management plan in July 2023; however, a signed DMSMS management plan was not in place at the time. In addition, the B-52 Product Support Manager indicated he did not plan to form a DMSMS management team. Instead, the SPO informally managed DMSMS through multiple IPTs. Without an approved plan to establish how to proactively respond to DMSMS, the SPO is unable to manage DMSMS spare part shortage issues effectively for the B-52 fleet. SPO officials also need to establish a DMSMS management team to be the focal point of DMSMS efforts and to coordinate implementation of the approved DMSMS management plan with all of the activities that could assist in the management of DMSMS. Therefore, the Program Executive Officer, Bombers, should require that the B-52 System Program

<sup>15</sup> (U) In 2011, the Principal Deputy Under Secretary of Defense established the LCSP requirement. The LCSP is a way for programs to document how they will satisfy life-cycle requirements, including addressing DMSMS. However, as the B-52 began flying in 1954, the LCSP requirement was not in place when the B-52 program was established.

(U) Manager, SPO, establish and implement a signed DMSMS management plan for the B-52 to proactively manage B-52 spare parts in accordance with DoD Manual 4140.01, volume 3.

### **(U) Bill of Materials**

(U) The SPO does not have, and never did have, a B-52 BOM that identified all spare parts. A BOM is the listing of spare parts and required quantities, used to identify spare parts needed to build an assembly or weapon system. The BOM is a resource for spare parts data management. By having a BOM to identify all B-52 spare parts, Air Force officials could then determine which spare parts would require monitoring for potential DMSMS issues. The Product Support Manager stated that the SPO did not know the total number of B-52 spare parts, and SPO officials stated that, due to the age of the B-52 and data system limitations, the B-52 SPO is unable to build a complete BOM. Additionally, the DLA reported that it managed approximately 70,000 consumable spare parts for the B-52. According to the SPO, B-52 Sustainment Branch personnel are working in phases to build a BOM and connect all 70,000 spare parts to part numbers. They first self-identified this deficiency in October 2020 and attempted to connect the spare parts to part numbers through software automation; however, they were unsuccessful due to limitations of available data. As a result, the B-52 Sustainment Branch personnel began manually connecting the spare parts to part numbers in August 2022. Their goal is to complete phase one of this effort by April 2024. Without a BOM, Air Force officials cannot proactively identify all spare parts with a high risk of DMSMS issues. Therefore, the Program Executive Officer, Bombers, should require that the B-52 System Program Manager, SPO, establish and implement a process to develop and periodically update a BOM for all B-52 spare parts on the aircraft to reflect updates to both legacy and modernized spare parts.

(U) Additionally, because SPO officials do not have a complete BOM, they are unable to perform an effective annual WSSP coding review. The purpose of the coding review is to prioritize needed spare parts for the weapon system so that the DLA can ensure those spare parts are available. According to DoD Manual 4140.01, volume 2, the Services must perform an annual reconciliation of the spare part codes with DLA records and resolve any identified discrepancies.<sup>16</sup> To perform a complete coding review, SPO officials need a BOM. Until the SPO develops a complete BOM for the B-52 and performs a comprehensive WSSP review, the SPO cannot fully identify spare parts for the DLA to procure. Therefore, the Program Executive Officer, Bombers, should require that the B-52 System Program Manager,

<sup>16</sup> (U) DoD Manual 4140.01, volume 2, "DoD Supply Chain Materiel Management Procedures: Demand and Supply Planning," November 9, 2018.

(U) SPO, establish and implement a process to complete annual WSSP coding reviews of B-52 spare parts and validate codes with the DLA to ensure accurate coding of all spare parts.

## **(U) Proactive DMSMS Management Could Reduce Spare Part Shortages and Improve Aircraft Availability**

~~(CUI)~~ The SPO's lack of effective DMSMS management contributed to spare part shortages, which caused a decrease in the B-52 AA and an increase in obtaining spare parts by cannibalization. Despite the modernization investment of at least \$48.6 billion, [REDACTED]

## **(U) Recommendation, Management Comments, and Our Response**

### ***Recommendation 1***

**(U) We recommend that the Program Executive Officer, Bombers, require that the B-52 System Program Manager, System Program Office, establish and implement a:**

- a. (U) Signed management plan for diminishing manufacturing sources and materiel shortages for the B-52 to proactively manage B-52 spare parts in accordance with DoD Manual 4140.01, volume 3.**

<sup>17</sup> (U) Air Force Global Strike Command establishes AA rates and not actual required aircraft numbers. The number and percentage of aircraft were determined based on our own calculation. We multiplied the standard and actual rates by the total aircraft fleet numbers for each fiscal year.

***(U) Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics) Comments***

(U) The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics), responding for the Program Executive Officer, Bombers, agreed with the recommendation.

***(U) Our Response***

(U) Comments from the Military Deputy partially addressed the recommendation; therefore, the recommendation is unresolved. The Military Deputy did not address the specifics of the recommendation, because they did not state the corrective actions planned or a date of completion. Therefore, we request the Program Executive Officer, Bombers, describe the specific actions that the Program Office will take to implement a signed DMSMS management plan for the B-52 to proactively manage spare parts and a date for when the signed DMSMS plan will be available.

- (U) Process to develop and periodically update a bill of materials for all B-52 spare parts on the aircraft to reflect updates to both legacy and modernized spare parts.**

***(U) Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics) Comments***

(U) The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics), responding for the Program Executive Officer, Bombers, agreed with the recommendation.

***(U) Our Response***

(U) Comments from the Military Deputy partially addressed the recommendation; therefore, the recommendation remains unresolved. The Military Deputy did not address the specifics of the recommendation, because they did not state the corrective actions planned or a date of completion. Therefore, we request that the Program Executive Officer, Bombers, provide a description of the specific actions they plan to take to ensure a BOM has been established and implemented for all B-52 spare parts and a planned date of completion.

- c. **(U) Process to complete annual Weapon System Support Program coding reviews of B-52 spare parts and validate codes with the Defense Logistics Agency to ensure accurate coding of all spare parts.**

***(U) Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics) Comments***

(U) The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics), responding for the Program Executive Officer, Bombers, agreed with the recommendation. Additionally, the Military Deputy stated that the B-52 SPO already has a process in place to complete an annual WSSP review to ensure all B-52 parts have the correct DLA coding and that the B-52 SPO will include the development of a BOM in this review.

***(U) Our Response***

(U) Comments from the Military Deputy addressed the specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close the recommendation once we verify that the B-52 SPO includes the development of the BOM in the annual WSSP reviews.

## **(U) Appendix A**

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### **(U) Scope and Methodology**

(U) We conducted this performance audit from March 2022 through August 2023 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.

### **(U) Supply Chain Areas Reviewed**

(U) Based on our announced objective, “to determine if the DoD effectively managed the B-52 supply chain to meet sustainment requirements,” we identified and reviewed the following supply chain areas:

- (U) DMSMS, obsolescence, and single source of supply;
- (U) additive manufacturing, intellectual property, and data rights; and
- (U) critical spare parts identified on the management of critical spare parts MICAP reports.

(U) During audit fieldwork, we did not identify control deficiencies related to Additive Manufacturing, Intellectual Property and Data Rights, or Critical Spare Parts. However, we identified potential control deficiencies related to DMSMS. As a result, we changed our objective to “determine whether the Air Force effectively managed DMSMS for the B-52 to prevent and respond to spare part shortages” to focus our audit fieldwork on the most significant issue identified.

### **(U) DMSMS, Obsolescence, and Single Source of Supply**

(U) We initially identified DMSMS, obsolescence, and single source of supply as separate risk areas; however, these three risk areas are interrelated because each results in potential spare parts shortages due to having fewer or no suppliers for spare parts. As a result, we reviewed them under the one category of DMSMS. We obtained and analyzed DoD and Air Force guidance for DMSMS. We analyzed the B-52 LCSP to determine any requirements for addressing DMSMS for the B-52. We then interviewed B-52 SPO officials to determine any actions taken or being planned for addressing DMSMS, and if those actions follow the plans discussed in the B-52 LCSP, if any. We then analyzed what actions the Air Force is taking to manage any DMSMS and determined if they are effective. We also reviewed the B-52 WSSP implementation by interviewing Air Force and DLA officials to ensure it

(U) follows guidance. We determined how (and by whom) codes are assigned to B-52 spare parts, and whether the Air Force has correctly coded all spare parts that the DLA manages for the B-52.

### ***(U) MICAPs***

(U) We did not identify any specific DoD or Air Force policy concerning MICAP; however, the B-52 SPO had a process in place to collect and manage B-52 MICAP data. For the MICAP area, we interviewed Air Force officials to understand their process for maintaining and using MICAP data. We then determined whether the Air Force had an effective process or strategy in place for capturing MICAP data. We then obtained an Air Force-created DMSMS listing and MICAP listing for selected time periods. We performed a comparative analysis between the MICAP listing and the DMSMS listing, and identified the number of spare parts that are included on both lists. We then identified the number of unique spare parts that have been on the MICAP list over 6 months. We then interviewed Air Force officials to determine the detailed explanation for the unique spare parts that have been on the MICAP list over 6 months.

### ***(U) Additive Manufacturing and Intellectual Property and Data Rights***

(U) We identified DoD policy that requires DoD to apply Additive Manufacturing, as appropriate, to enhance the DoD's industrial base in order to advance weapon systems capabilities and sustainment. For the Additive Manufacturing and Intellectual Property/Data Rights area, we interviewed Air Force and DLA officials to obtain general information on the use of Additive Manufacturing with respect to the B-52 program. We then determined whether the Air Force was effectively using Additive Manufacturing for the B-52 at the time of this review.

### ***(U) Interviews and Documentation***

(U) We interviewed officials from the following offices to understand their roles and involvement in the supply chain areas.

- (U) Air Force Global Strike Command
- (U) Secretary of the Air Force for Acquisition
- (U) Air Force Materiel Command
- (U) Air Force Life Cycle Management Center
- (U) B-52 SPO
- (U) Air Force Sustainment Center

- (U) Air Force 448th SCMW
- (U) Air Force 848th Supply Chain Management Group
- (U) Air Force 439th Supply Chain Operations Squadron
- (U) Air Force 5th Logistics Readiness Squadron (Minot Air Force Base)
- (U) Air Force 2nd Mission Support Group (Barksdale Air Force Base)
- (U) DLA

(U) We obtained and reviewed the following program documents.

- (U) B-52 LCSP
- (U) B-52 Weapon System Review briefing charts
- (U) Air Force B-52 Section 802 sustainment review
- (U) MICAP reports
- (U) Lists of B-52 managed spare parts

### **(U) Criteria**

(U) We reviewed the following guidance related to supply chain management.

- (U) DoD Instruction 5000.91, "Product Support Management for the Adaptive Acquisition Framework"
- (U) DoD Instruction 4245.15, "Diminishing Manufacturing Sources and Materiel Shortages Management"
- (U) DoD Instruction 5000.93, "Use of Additive Manufacturing in the DoD"
- (U) DoD Manual 4140.01, volume 1, "DoD Supply Chain Management Procedures: Operational Requirements"
- (U) DoD Manual 4140.01, volume 2, "DoD Supply Chain Materiel Management Procedures: Demand and Supply Planning"
- (U) DoD Manual 4140.01, volume 3, "DoD Supply Chain Materiel Management Procedures: Materiel Sourcing"
- (U) Air Force Instruction 63-101/20-101, "Integrated Life Cycle Management"
- (U) Air Force Instruction 23-101, "Materiel Management Policy"
- (U) Air Force Materiel Command Instruction 20-105, "Diminishing Manufacturing Sources and Materiel Shortages (DMSMS)"
- (U) DLA Instruction 4140.38, "Weapon System Support Program"

## (U) Internal Control Assessment and Compliance

(U) We assessed internal controls and compliance with laws and regulations necessary to satisfy the audit objective. In particular, we assessed the Air Force's compliance with DoD and Air Force supply chain management guidance. However, because our review was limited to these internal control components and underlying principles, it may not have disclosed all internal control deficiencies that may have existed at the time of this audit.

## (U) Use of Computer-Processed Data

(U) We obtained a DMSMS spare part list and a MICAP report from the B-52 SPO. We compiled the data in these lists from various Air Force personnel and the MICAP board, which is a web site used to accumulate data for spare parts. We compared and analyzed the DMSMS spare part list and MICAP report to identify the number of MICAP parts that were caused by DMSMS issues, any spare parts included on both the DMSMS listing and cannibalization lists, and any spare parts included on the MICAP listing for over 6 months and the root cause for those spare part shortages. The DMSMS list was incomplete and was missing data such as spare part descriptions, part numbers, or National Item Identification Numbers/National Stock Numbers for several spare parts on the list, and did not include all DMSMS spare parts. The DMSMS list provided by the SPO also may not be accurate because the SPO compiled it from various sources and the list did not include the reason the SPO considered the spare parts DMSMS. Therefore, we did not assess the reliability of any data from the MICAP board data because it does not materially affect our findings, conclusions, or recommendations.

## (U) Prior Coverage

(U) The GAO issued five reports in the last 6 years related to weapon system sustainment rates and supply chain risks. Unrestricted GAO reports are accessible at <https://www.gao.gov/>. The DoD OIG issued two reports related to weapon system readiness and critical spare parts in the last 6 years. Unrestricted DoD OIG reports can be accessed at <http://www.dodig.mil/reports.html/>. The Air Force Audit Agency issued two reports in the last 6 years related to aircraft cannibalization and spare parts management. Unrestricted Air Force Audit Agency reports are accessible at <https://www.afaa.af.mil/>.

**(U) GAO**

(U) Report No. GAO-23-106217, “Weapon System Sustainment: Aircraft Mission Capable Goals Were Generally Not Met and Sustainment Costs Varied by Aircraft,” November 2022

(U) The GAO examined 49 aircraft and found that only four met their annual mission capable goal in a majority of the years from FY 2011 through FY 2021. The GAO found that 26 aircraft did not meet their annual mission capable goal in any fiscal year. The report specifically calls out the B-52, stating that it met its mission capable rate in only 3 of the 11 years. The report also discusses the sustainment challenges and mitigation actions for the B-52.

(U) Report No. GAO-21-101SP, “Weapon System Sustainment: Aircraft Mission Capable Rates Generally Did Not Meet Goals and Cost of Sustaining Selected Weapon Systems Varied Widely,” November 2020

(U) The GAO examined 46 types of aircraft for the mission capable rates for FY 2011 through FY 2019 and found that only three met their goals in a majority of those years. The GAO found that 24 aircraft did not meet their mission capable rate in any of those years. The report specifically calls out the B-52, stating that it met or exceeded its mission capable rate in only 3 of the 9 years. The report also discusses the sustainment challenges and mitigation actions for the B-52.

(U) Report No. GAO-19-321, “F-35 Aircraft Sustainment: DoD Needs to Address Substantial Supply Chain Challenges,” April 2019

(U) The GAO found that F-35 aircraft performance is falling short of warfighter requirements—that is, aircraft cannot perform as many missions or fly as often as required. This lower-than-desired aircraft performance is due largely to F-35 spare parts shortages and limited repair capabilities.

(U) Report No. GAO-18-678, “Weapon System Sustainment: Selected Air Force and Navy Aircraft Generally Have Not Met Availability Goals, and DoD and Navy Guidance Need to be Clarified,” September 2018

(U) The GAO found that between FY 2011 and FY 2016, the Air Force and Navy generally did not meet AA goals and operating and support (O&S) cost trends for the GAO’s selected fixed-wing aircraft varied. Specifically, the GAO found that availability declined for 6 of 12 aircraft (3 from each Service) between FY 2011 and FY 2016; availability fell short of goals for 9 of 12 aircraft in FY 2016; and O&S costs increased for 5 of the aircraft, and maintenance costs increased for 8 of the 12 aircraft. The B-52 was one of the aircraft reviewed

(U) by the GAO for the report. The GAO evaluation found that O&S costs for the B-52 have remained generally steady, fluctuating around \$1.2-\$1.3B per year, with most of the cost related to maintenance and staffing. The B-52 faces sustainment challenges related to its age and, according to officials, replacement parts are difficult to obtain.

(U) Report No. GAO-17-768, "Defense Supply Chain: DoD Needs Complete Information on Single Sources of Supply to Proactively Manage the Risks," September 2017

(U) The report evaluates the extent to which the DoD's 2016 report on risks associated with single sources of supply addressed the four elements directed by Senate Report 114-49. The GAO report also evaluates the extent to which DoD weapon system program offices have information for identifying and managing single sources of supply risks. The GAO found that the DoD's 2016 report did not fully address two of the four elements directed by a Senate report and did not include other information that would have provided further insight into those risks.

### **(U) DoD OIG**

(U) Report No. DODIG-2021-083, "Evaluation of the Readiness of the U.S. Navy's P-8A Poseidon Aircraft to Meet the U.S. European Command's Anti-Submarine Warfare Requirements," May 2021

(U) The objective of the evaluation was to determine whether the readiness of the U.S. Navy's P-8A Poseidon fleet met the anti-submarine warfare requirements of the U.S. European Command. The specific findings of the report are classified. However, the report does discuss that there were sustainment problems that led to a low mission capable rate for the P-8A Poseidon fleet. This low rate was due to the Maritime Patrol Reconnaissance Aircraft's incomplete sustainment strategy and program, along with a lack of oversight by the Program Executive Office, Air Anti-Submarine Warfare, Assault and Special Mission Programs throughout the P-8A Poseidon life cycle.

(U) Report No. DODIG-2020-030, "Audit of Navy and Defense Logistics Agency Spare Parts for F/A-18 E/F Super Hornets," November 2019

(U) The audit team reviewed a nonstatistical sample of 5 of 20 critical spare parts that directly impact the mission capability of the Super Hornets. The audit found that for the 5 critical spare parts reviewed, Navy and DLA officials identified the quantity of those parts the Navy needed to maintain the operational readiness of the Super Hornet fleet. However, Navy and

(U) DLA officials could not obtain the quantity needed to satisfy current demands and fill backorders. The specific causes contributing to the backorders were obsolete materials that are no longer made or available for purchase, manufacturing delivery and repair delays, and the Navy's lack of technical data used in producing or repairing spare parts.

**(U) Air Force**

(U) Report No. F2021-0007-L40000, "Aircraft Cannibalization," May 2021

(U) The objective of the audit was to determine whether Air Force personnel properly managed aircraft cannibalization actions. The result of the audit was that Air Force personnel did not properly manage the cannibalizations. Specifically, the audit found that for 234 base-level cannibalization actions reviewed, logistics personnel did not accurately document 40 (17 percent) or report 12 (5 percent) of the cannibalization actions.

(U) Report No. F2020-0008-L40000, "U-2 Spare Parts Management," April 2020

(U) The objective of the audit was to determine whether Air Force personnel properly managed U-2 spare parts, specifically computing and executing spare parts requirements and managing time change items. The audit team found that Air Force personnel properly managed U-2 spare parts, both for computing and executing spare parts requirements, as well as managing time change items.

## (U) Appendix B

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### (U) B-52 Modernization Programs

(U) There are currently 12 B-52 Modernization Programs.

- (CUI) [REDACTED]
- (U) The Tactical Data Link modernization program intends to provide position location capability and other tactical data information.
- (U) The Advanced Targeting Pod Smart Display Sustainment modernization program intends to design, develop, test, and manufacture the Advanced Targeting Pod Display to replace the legacy B-52 Multi-Function Color Display.
- (CUI) [REDACTED]
- (U) The 1760 Internal Weapons Bay Upgrade modernization program intends to allow the B-52 to store up to eight advanced precision-guided Joint Direct Attack Munitions in its internal weapons bay, in addition to the 12 it can currently carry on exterior weapons pylons.
- (CUI) [REDACTED]
- (CUI) [REDACTED]
- (U) The Commercial Engine Replacement Program intends to replace B-52 engines with new commercial engines to sustain fleet viability through 2050 and beyond.
- (CUI) [REDACTED]
- (CUI) [REDACTED]

- (CUI) [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]
- (CUI) [REDACTED]  
[REDACTED]

## (U) Management Comments

### (U) Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics)



OFFICE OF THE ASSISTANT SECRETARY

~~CONTROLLED UNCLASSIFIED INFORMATION~~  
DEPARTMENT OF THE AIR FORCE  
WASHINGTON DC

28 Sep 23

MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTOR GENERAL

FROM: SAF/AQ  
1060 Air Force Pentagon  
Washington, DC 20330 1060

SUBJECT: Department of the Air Force Response to DoD Office of Inspector General Draft Report, "Audit of B 52 Diminishing Manufacturing Sources and Material Shortages" (Project No. D2022-D000AT-0114.000)

1. (U) This is the Department of the Air Force response to the DoDIG Draft Report, "Audit of B-52 Diminishing Manufacturing Sources and Material Shortages" (Project No. D2022 D000AT-0114.000). The report provided one 3-part recommendation which the DAF partially concurs with as written and welcomes the opportunity to coordinate further revisions as necessary.

2. (U) **RECOMMENDATION 1.a:** The DODIG recommends that the Program Executive Officer, Bombers, require that the B 52 System Program Manager, System Program Office, establish and implement a signed management plan for diminishing manufacturing sources and materiel shortages for the B-52 to proactively manage B 52 spare parts in accordance with DoD Manual 4140.01, volume 3.

~~(CUI)~~ DAF RESPONSE: Agree with comment. Recommend revising the finding to read: "The B-52 SPO did not proactively manage DMSMS for the B-52 to prevent and respond to spare part shortages."

3. (U) **RECOMMENDATION 1.b:** The DODIG recommends that the Program Executive Officer, Bombers, require that the B 52 System Program Manager, System Program Office, establish and implement a process to develop and periodically update a bill of materials for all B-52 spare parts on the aircraft to reflect updates to both legacy and modernized spare parts.

(U) DAF RESPONSE: Agree.

4. (U) **RECOMMENDATION 1.c:** The DODIG recommends that the Program Executive Officer, Bombers, require that the B 52 System Program Manager, System Program Office, establish and implement a process to complete annual Weapon System Support Program coding reviews of B 52 spare parts and validate codes with the Defense Logistics Agency to ensure accurate coding of all spare parts.

Controlled by: ~~AFLCMCWRD~~  
CUI Category: ~~OPSEC~~  
Limited Dissemination Control: ~~FEDCON~~  
POC: ~~[REDACTED]~~

~~CONTROLLED UNCLASSIFIED INFORMATION~~

## (U) Office of the Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics) (cont'd)

~~CONTROLLED UNCLASSIFIED INFORMATION~~

(U) **DAF RESPONSE:** Agree with comment. The B-52 SPO has a process in place to complete an annual Weapon System Support Program (WSSP) coding review. This annual review ensures all B-52 parts have the correct DLA coding. The B-52 SPO will include the development of a bill of materials in this review.

5. (U) The SAF/AQ point of contact is [REDACTED], SAF/AQPN, [REDACTED], or email at [REDACTED]

[REDACTED]  
[REDACTED] Lt Gen, USAF  
Military Deputy, Office of the Assistant Secretary of  
the Air Force (Acquisition, Technology & Logistics)

~~CONTROLLED UNCLASSIFIED INFORMATION~~

## (U) Acronyms and Abbreviations

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<b>AA</b>	Aircraft Availability
<b>BOM</b>	Bill of Materials
<b>DLA</b>	Defense Logistics Agency
<b>DMSMS</b>	Diminishing Manufacturing Sources and Material Shortages
<b>IPT</b>	Integrated Product Team
<b>LCSP</b>	Life-Cycle Sustainment Plan
<b>MICAP</b>	Mission Impaired Capability Awaiting Parts
<b>SCMW</b>	Supply Chain Management Wing
<b>SPO</b>	System Program Office
<b>WSSP</b>	Weapon System Support Program

## **Whistleblower Protection**

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### **DoD OIG Mailing Lists**

[www.dodig.mil/Mailing-Lists/](http://www.dodig.mil/Mailing-Lists/)

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