Report No. DODIG-2014-119

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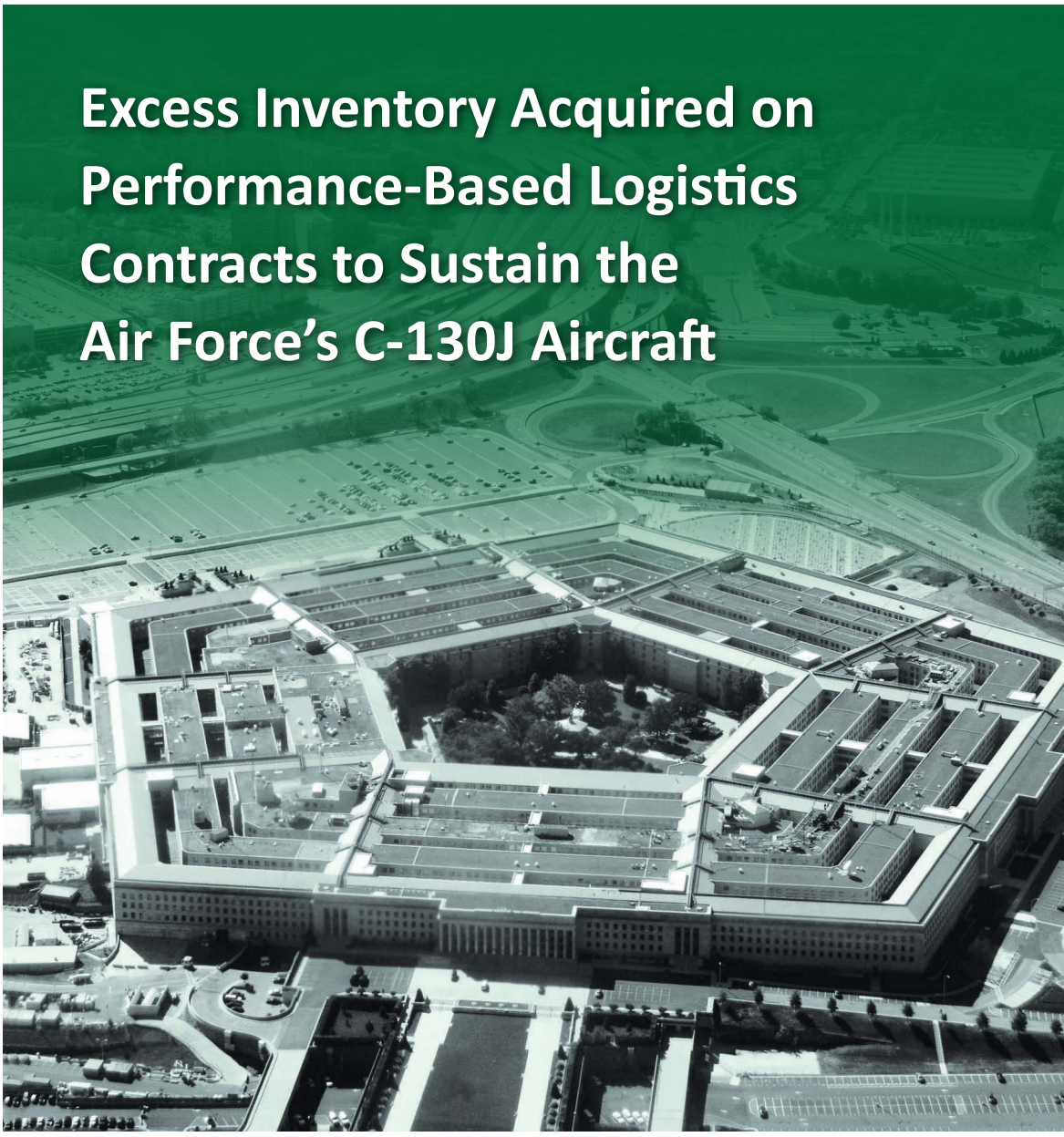
INSPECTOR GENERAL

U.S. Department of Defense

SEPTEMBER 22, 2014

Excess Inventory Acquired on Performance-Based Logistics Contracts to Sustain the Air Force's C-130J Aircraft



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Results in Brief

Excess Inventory Acquired on Performance-Based Logistics Contracts to Sustain the Air Force's C-130J Aircraft

September 22, 2014

Objective

We evaluated the cost effectiveness of material purchases made for the C-130J *Hercules* aircraft through performance-based logistics (PBL) contracts with the Lockheed Martin Corporation and the Rolls-Royce Corporation.

Finding

(~~FOUO~~) The Chief, Tactical Airlift Division and the contracting officer did not efficiently manage spare parts inventory, valued at $[redacted], under the Lockheed Martin and Rolls-Royce PBL contracts for the long-term sustainment of the C-130J aircraft. The management and purchase of spare parts were inefficient because the chief and the contracting officer established inadequate performance-based contract requirements that did not focus on controlling the amount of Air Force–owned inventory; did not track Air Force–specific reliability data for Rolls-Royce spare parts to estimate future inventory needs; and used operations and maintenance appropriations to satisfy requirements that were potentially not a bona fide need.

Finding (cont'd)

Additionally, the Assistant Secretary of Defense Logistics and Materiel Readiness and Director, Defense Procurement and Acquisition Policy did not establish specific guidance regarding controls for the proper retention, reuse, and disposal of DoD inventory managed by contractors under PBL service arrangements.

(~~FOUO~~) We statistically sampled Lockheed Martin parts and calculated excess inventory worth $[redacted]. Additionally, we nonstatistically sampled Rolls-Royce parts and calculated excess inventory, totaling $17.1 million.

Recommendations

Among other recommendations, the Program Executive Officer for Air Force Mobility Programs should direct the Chief, Tactical Airlift Division to establish and monitor an appropriate PBL inventory control metric; reduce future contract costs by the value of excess inventory; track and report Air Force C-130J fleet reliability data to Rolls-Royce for use in determining future spare parts needs; and initiate disposal actions or reuse options for excess and obsolete inventory.

Additionally, the Assistant Secretary of the Air Force (Financial Management and Comptroller) should perform a preliminary review of operations and maintenance expenditures to determine if a bona fide need existed and whether any potential Antideficiency Act violations occurred.

Further, the Assistant Secretary of Defense Logistics and Materiel Readiness should revise DoD Manual 4140.01, Volume 6 to require contractors managing Government inventory under PBL contracts to report inventory requirements, existing Government inventory, and excess inventory.

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Results in Brief

Excess Inventory Acquired on Performance-Based Logistics Contracts to Sustain the Air Force's C-130J Aircraft

Management Comments and Our Response

Comments from the Acting Assistant Secretary of Defense Logistics and Materiel Readiness addressed all specifics of Recommendation 3. Additionally, comments from the Acting Assistant Secretary of Defense responding for the Director, Defense Procurement and Acquisition Policy, addressed all specifics of Recommendation 4. Furthermore, comments from the Assistant Secretary of the Air Force (Financial Management and Comptroller) addressed all specifics of Recommendation 2. The Program Executive Officer for Air Force Mobility Programs addressed all specifics of Recommendations 1.a.4. and 1.b. However, the Program Executive Officer did not address all specifics of Recommendations 1.a.1., 1.a.2., 1.a.3., and 1.a.5. We request additional comments to the final report by October 22, 2014. Please see the Recommendations Table on the next page.

Recommendations Table

Management	Recommendations Requiring Comment	No Additional Comments Required
Assistant Secretary of Defense Logistics and Materiel Readiness		3.a., 3.b.
Director, Defense Procurement and Acquisition Policy		4
Assistant Secretary of the Air Force (Financial Management and Comptroller)		2
Program Executive Officer for Air Force Mobility Programs	1.a.1., 1.a.2., 1.a.3., 1.a.5.	1.a.4., 1.b.

Please provide comments by October 22, 2014.

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

September 22, 2014

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE ACQUISITION, TECHNOLOGY, AND LOGISTICS
ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL MANAGEMENT AND COMPTROLLER)

SUBJECT: Excess Inventory Acquired on Performance-Based Logistics Contracts to Sustain the Air Force's C-130J Aircraft (Report No. DODIG-2014-119)

~~(FOUO)~~ We are providing this report for review and comment. We reviewed C-130J aircraft spare parts purchased from Lockheed Martin and Rolls-Royce, valued at [redacted], and identified excess inventory totaling [redacted] and $17.1 million, respectively, that could have been put to better use.

We considered management comments on a draft of this report when preparing the final report. DoD Directive 7650.3 requires that all recommendations be resolved promptly. Comments from the Acting Assistant Secretary of Defense Logistics and Materiel Readiness, Director Defense Procurement and Acquisition Policy, Assistant Secretary of the Air Force (Financial Management and Comptroller), and the Program Executive Officer for Air Force Mobility Programs were responsive to Recommendations 1.a.4., 1.b., 2, 3.a., 3.b., and 4. However, we request additional comments from the Program Executive Officer for Air Force Mobility Programs for Recommendations 1.a.1., 1.a.2., 1.a.3., and 1.a.5. by October 22, 2014.

Please provide comments that conform to the requirements of DoD Directive 7650.3. Please send a PDF file containing your comments to api@dodig.mil. Copies of your comments must have the actual signature of the authorizing official for your organization. We cannot accept the /Signed/ symbol in place of the actual signature. If you arrange to send classified comments electronically, you must send them over the SECRET Internet Protocol Router Network (SIPRNET).

We appreciate the courtesies extended to the staff. Please direct questions to me at (703) 604-9077.

Jacqueline L. Wicecarver
Assistant Inspector General
Acquisition, Parts, and Inventory

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Management Comments

Acronyms and Abbreviations

Introduction

Objectives

The audit objective was to evaluate the cost effectiveness of material purchases made for the C-130J *Hercules* aircraft through performance-based logistics contracts with the Lockheed Martin Corporation (Lockheed Martin) and the Rolls-Royce Corporation (Rolls-Royce). See Appendix A for a discussion of the scope and methodology and prior audit coverage related to the objective.

National Defense Authorization Act for Fiscal Year 2009," Section 852, "Comprehensive Audit of Spare Parts Purchases and Depot Overhaul Maintenance of Equipment for Operations in Iraq and Afghanistan," October 14, 2008, requires:

> thorough audits to identify potential waste, fraud, abuse in the performance of the following: (1) Department of Defense contracts, subcontracts, and task and delivery orders for—(A) depot overhaul and maintenance of equipment for the military in Iraq and Afghanistan; and (B) spare parts for military equipment used in Iraq and Afghanistan.

Background

The C-130 *Hercules* aircraft was designed to transport a variety of oversized cargo in and out of rough terrain and hostile environments through air landing, extraction, and logistical support airdrops. The wide variety of cargo transported includes utility helicopters, six-wheeled armored vehicles, palletized equipment, container delivery systems, and personnel. The family of C-130 *Hercules* aircraft consists of the following six models: C-130A, C-130B, C-130E, C-130H, C-130J, and C-130J-30. The C-130J (Figure 1), first delivered to the Air Force in 1999, is the latest of the six C-130 aircraft models in the fleet of medium-sized tactical airlift. The latest C-130J model offers upgraded avionics technology and six-bladed, all-composite propeller system enhancements that allow for increased speed and higher altitudes for takeoff. The WC-130J, EC-130J, HC-130J, and MC-130J are four other variants derived from the base C-130J that were designed to meet distinct mission objectives.

Figure 1. C-130J *Super Hercules* Aircraft
Source: www.defenseimagery.mil

Air Force Life Cycle Management Center

The Air Force Life Cycle Management Center (AFLCMC), headquartered at Wright-Patterson Air Force Base, Ohio, reports to the Air Force Materiel Command. AFLCMC is the single focal point responsible for total life cycle management of all Air Force weapon system programs including aircraft, engines, munitions, and electronic systems. AFLCMC coverage includes: information technology systems and networks; command, control, communication, intelligence, surveillance, and reconnaissance systems; armaments; strategic systems; aerial platforms; and various specialized or supporting systems. Additionally, AFLCMC executes foreign aircraft sales and security assistance partnerships with foreign national air forces. AFLCMC consists of 10 program executive officers that are responsible for their respective programs.

Program Executive Officer for the Air Force Mobility Programs

The Program Executive Officer (PEO) for the Air Force Mobility Programs (AFLCMC-WL) is 1 of 10 program executive offices under AFLCMC but reports directly to the Assistant Secretary of the Air Force for Acquisition who is also the service acquisition executive. The PEO manages and supervises all acquisition category I, II, and III programs within the mobility aircraft area, including the C-130J *Hercules* and C-130 *Hercules* legacy aircrafts. The Chief, Tactical Airlift Division, located at Robins Air Force Base, Georgia,

is responsible for the acquisition requirements and sustainment support program for the C-130 weapon system and reports directly to the PEO. The Tactical Airlift Division is divided into two offices: 1.) AFLCMC-WLNN, which manages acquisition at Wright-Patterson Air Force Base, Ohio, and 2.) AFLCMC-WLNC, which manages sustainment at Robins Air Force Base, Georgia. See Appendix C for the organizational structure and chain of command for the major DoD Components responsible for the C-130J aircraft sustainment program.

Lockheed Martin Performance-Based Logistics Contract

On February 1, 2006, the C-130 Contracting Division of the 330th Tactical Airlift Sustainment Group awarded the primarily firm-fixed-price-plus-award-fee contract FA8504-06-D-0001 to Lockheed Martin for contractor logistics support of the C-130J airframe. The 10-year requirements contract consists of a 2-year base period and 3 multiyear-option periods in 2- and 3-year increments. As of February 2014, the contract is in contract year 9 with the replenishment of consumables and repair of reparables services totaling $190.8 million.[1] See Table 1 for contract value by year.

Table 1. Sustainment Costs on the Lockheed Martin Contract FA8504-06-D-0001 (February 2006 Through January 2016)

Contract Year	Delivery Order	Period of Performance	Contract Cost
1	0001	February 2006 – January 2007	$13,242,245
2	0003	February 2007 – January 2008	15,801,752
3	0300	February 2008 – January 2009	18,943,213
4	0400	February 2009 – January 2010	23,243,614
5 and 6[1]	0500	February 2010 – January 2012	54,918,712
7	0700	February 2012 – January 2013	26,756,479
8	0800	February 2013 – January 2014	27,731,135
9	0900	February 2014 – January 2015	10,120,988
10[2]	TBD	February 2015 – January 2016	TBD
Total			**$190,758,139**

[1] Modification 07 for Delivery Order 0500 extended the original ending period of performance from January 2011 through January 2012. Therefore, contract year 6 was executed as an extension of contract year 5, rather than an executed option year.

[2] As of February 2014, contract year 10 does not have an assigned delivery order or cost because it has not been priced and negotiated yet.

[1] The actual contract value of $190,758,139 was rounded to $190.8 million.

Lockheed Martin provides overall sustainment of the C-130J aircraft and mission specific variants (including the C-130J, C-130J Short, AC-130J, EC-130J, HC-130J, MC-130J, and WC-130J), to include both supplies and services. Lockheed Martin's material management responsibilities include provisioning,[2] cataloging, inventory management, requisition processing, procurement of consumable replenishment spares, and repairs to support aircraft hours flown. Lockheed Martin's inventory management responsibilities include managing the C-130J spare parts inventory, which was procured from the C-130J production contract and the performance-based logistics (PBL) services contract. In regards to supply support rates for contract year 9, Lockheed Martin provides consumable[3] replenishment spare parts support for an estimated [redacted] hours at a cost-per-flight-hour rate of [redacted] and repair of reparable[4] support for an estimated [redacted] hours at a cost-per-flight-hour rate of [redacted].

Rolls-Royce Performance-Based Logistics Contract

On February 1, 2007, the C-130 Contracting Division of the 330th Tactical Airlift Sustainment Group awarded firm-fixed-price incentive contract FA8504-07-D-0001 to Rolls-Royce. This is a commercial acquisition to provide contractor logistics support for the C-130J propulsion system, which includes the AE2100D3 turboprop engine and R-391 propeller. The 9-year requirements contract consists of 1 base year and eight 1-year option periods that would be executed under subsequent delivery orders. As of February 2014, the contract is in its 8th year with program management and power-by-the-hour (PBTH) service costs totaling $463 million. See Table 2 for contract value by year.

[2] Provisioning is the process of determining and acquiring the range and quantity of support items necessary to operate and maintain an end item of materiel for an initial period of service.

[3] DoD Manual 4140.01, Volume 2, "DoD Supply Chain Materiel Management Procedures: Demand and Supply Planning," defines a consumable item as an item of supply or individual item (except explosive ordnance and major end items of equipment) that is normally expended or used up beyond recovery in the use for which it is designated or intended.

[4] According to the performance work statement in contract FA8504-06-D-0001, repair of reparables refers to the services to repair spare parts that are not completely consumed and can be repaired at a cost that is less than 75 percent of the original purchase cost. The spare parts are shipped back to the original equipment manufacturer for repair and returned to the inventory control point for placement back in service.

Table 2. Program Management and Power-by-the-Hour Service Costs on the Rolls-Royce Contract FA8504-07-D-0001
(February 2007 Through January 2016)

Contract Year	Delivery Order	Period of Performance	Contract Cost
1	0001	February 2007 – January 2008	$31,529,974
2	0200	February 2008 – January 2009	39,851,784
3	0300	February 2009 – January 2010	48,715,349
4	0400	February 2010 – January 2011	63,661,047
5	0500	February 2011 – January 2012	68,142,738
6	0600	February 2012 – January 2013	86,825,217
7	0700	February 2013 – January 2014	85,126,345
8	0800	February 2014 – January 2015	39,160,292
9	TBD	February 2015 – January 2016	TBD
Total			**$463,012,746**

~~(FOUO)~~ Rolls-Royce provides program management services and required supply support of consumable and repairable C-130J-unique parts on a PBTH usage basis. This means [redacted] As of July 2013, the Air Force fielded 135 C-130J aircraft consisting of 540 engines and 540 propellers. According to the price negotiation memorandum, Rolls-Royce will support an estimated [redacted] in contract year 8 at a PBTH rate of $[redacted].

Review of Internal Controls

DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013, requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls. We identified an internal control weakness for the Air Force Chief, Tactical Airlift Division and the contracting officer. Specifically, the chief and contracting officer did not establish and monitor adequate performance-based contract metrics to control the amount of Air Force–owned inventory for the C-130J aircraft. Additionally, the Assistant Secretary of Defense Logistics and Materiel Readiness and Director, Defense Procurement and Acquisition Policy did not establish specific guidance regarding controls for the proper retention, reuse, and disposal of DoD inventory managed by contractors under PBL service arrangements. We will provide a copy of the report to the senior official responsible for internal controls in the Air Force; Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics; and Office of the Assistant Secretary of Defense Logistics and Materiel Readiness.

Finding

Inefficient Air Force Management of C-130J Inventory Acquired From Lockheed Martin and Rolls-Royce

~~(FOUO)~~ The Chief, Tactical Airlift Division and the contracting officer did not efficiently manage spare parts inventory, valued at $[redacted], under the Lockheed Martin and Rolls-Royce PBL contracts for the long-term sustainment of the C-130J aircraft. The management and purchase of spare parts were inefficient because the chief and the contracting officer:

- established inadequate performance-based contract requirements that focused on the contractors maintaining a stock availability metric[5] without establishing inventory control metrics for the Air Force-owned inventory;
- did not track Air Force–specific reliability data for Rolls-Royce spare parts to forecast future inventory needs; and
- used operations and maintenance (O&M) appropriated funds to satisfy requirements that were potentially not a bona fide need for the statutory 12-month period of availability.

Additionally, the Assistant Secretary of Defense Logistics and Materiel Readiness [ASD(L&MR)] and Director, Defense Procurement and Acquisition Policy (DPAP) did not establish specific guidance regarding controls for the proper retention, reuse, and disposal of DoD inventory managed by contractors under PBL service arrangements.

~~(FOUO)~~ As a result, the Air Force paid Lockheed Martin and Rolls-Royce to accumulate Air Force–owned excess C-130J spare parts inventory.[6] We statistically sampled Lockheed Martin parts and identified excess inventory of approximately $[redacted] across all airframe inventory that could either be used to offset future contract requirements ($[redacted]) or be processed for reuse or disposal ($[redacted]). See Appendix B for the sample methodology. Additionally, we performed a nonstatistical sample of 88 of 536 Rolls-Royce parts, valued at $87.1 million and calculated excess inventory, totaling $17.1 million that could be used to offset future contract requirements. Also, an additional $[redacted] in excess inventory

[5] Stock availability metric is the percentage of time that a spare part is ready to fulfill a demand in support of a weapon system mission.

[6] The DoD IG determined excess inventory to be stock on hand that significantly exceeded a 2-year operational and reserve requirement for commercial acquisitions and a 3-year requirement for noncommercial acquisitions.

~~(FOUO)~~ for Lockheed Martin parts and $4.9 million in excess inventory for Rolls-Royce parts could accumulate over the remainder of the contracts if corrective action is not taken. Furthermore, the Tactical Airlift Division potentially committed Antideficiency Act (ADA) violations (section 1502(a), title 31 United States Code) by failing to identify a bona fide need for the periods in which O&M funds were appropriated.

C-130J Inventory Was Inefficiently Managed Under the Performance-Based Logistics Contract

~~(FOUO)~~ The Chief, Tactical Airlift Division and the contracting officer did not efficiently manage spare parts inventory, valued at $[redacted], under the Lockheed Martin and Rolls-Royce PBL contracts for the long-term sustainment of the C-130J aircraft. Lockheed Martin parts accounted for $[redacted] and Rolls-Royce parts accounted for $138 million[7] of the total C-130J-unique spare part inventory. C-130J spare parts inventory is stored at contractor-managed wholesale inventory control points (ICP) at Keesler Air Force Base, Mississippi, and Indianapolis, Indiana, and at [redacted] Air Force–managed retail locations. See Table 3 for a summary of all C-130J spare parts by contractor-managed wholesale or Air Force–managed retail location.

Table 3. Global Inventory of C-130J-Unique Spare Part Items by Location

(~~FOUO~~) Description	Dollar Value
Lockheed Martin[1]	
Wholesale (Keesler AFB)	$[redacted]
Retail [redacted] locations)	[redacted]
Subtotal ([redacted] different parts)	[redacted]
Rolls-Royce[2]	
Wholesale (Indianapolis, IN)	91,007,141
Retail [redacted] locations)	46,983,997
Subtotal (536 different parts)	137,991,138
Total Inventory ([redacted] different parts) (~~FOUO~~)	$[redacted]

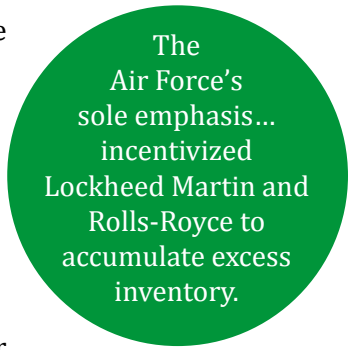
[1] Lockheed Martin inventory data is as of July 11, 2013.
[2] Rolls-Royce inventory data is as of July 25, 2013.

See Appendix D for the inventory distribution by contractor-managed wholesale and Air Force-managed retail locations.

~~(FOUO)~~ [7] The actual Rolls-Royce inventory value of $137,991,138 was rounded to $138 million.

Better Performance-Based Metrics Are Needed

The Air Force's sole emphasis on operational availability incentivized Lockheed Martin and Rolls-Royce to accumulate excess inventory on the firm-fixed-price-plus-award-fee contract and firm-fixed-price contract with incentive provisions, respectively. The Chief, Tactical Airlift Division and the contracting officer established inadequate performance-based contract requirements that focused on the contractors achieving stock availability metrics without establishing inventory control metrics for the Air Force–owned inventory.



The ASD(L&MR) memorandum, "Performance Based Logistics Comprehensive Guidance," November 22, 2013, states that a characteristic of an effective PBL arrangement is having "incentives to achieve required outcomes and cost reduction initiatives." Additionally, "A PBL arrangement does not incentivize the consumption of maintenance labor hours, consumption of parts, or other transactional measurement in a way that is unaligned with the program's (system, subsystem, component) sustainment requirements."

The Under Secretary of Defense for Acquisition, Technology, and Logistics memorandum, "Performance Based Logistics: Purchasing Using Performance Based Criteria," August 16, 2004, established guidance requiring that PBL arrangements be constructed to define contractor performance based on the desired outcomes. The guidance defines performance in terms of military objectives using the following five measurable criteria:

1. Operational Availability. The percent of time that a weapon system is available for a mission or ability to sustain an operation's tempo.

2. Operational Reliability. The measure of a weapon system in meeting mission success objectives (percent of objectives met, by weapon system). Depending on the weapon system, a mission objective would be a sortie, tour, launch, destination reached, capability, etc…

3. Cost-Per-Unit Usage. The total operating costs divided by the appropriate unit of measure for a given weapon system. Depending on weapon system, the measurement unit could be flight hour, steaming hour, launch, mile driven, etc…

4. Logistics Footprint. The government/contractor size or "presence" of logistics support required to deploy, sustain, and move a weapon system. Measurable elements include inventory/equipment, personnel, facilities, transportation assets, and real estate.

5. Logistics Response Time. This is the period of time from logistics demand signal sent to satisfaction of that logistics demand. "Logistics Demand" refers to systems, components, or resources, including labor, required for weapon system logistics support.

The memorandum encourages program managers to define successful contractor performance and select all of the applicable PBL metrics that effectively measure the achievement of that performance. Subsequently, on November 22, 2005, an Under Secretary of Defense for Acquisition, Technology, and Logistics memorandum, "Total Life Cycle Systems Management (TLCSM) Metrics," directed that the measurable criteria be used as the standard set of metrics for evaluating overall total life-cycle systems management.

Additionally, DoD policy requires that program managers recognize the significance of incorporating cost-saving metrics into PBL contracts. DoD Directive 5000.01, "The Defense Acquisition System," Section E1.1.17, "Performance-Based Logistics," states, "PMs [Program Managers] shall develop and implement performance-based logistics strategies that optimize total system availability while **minimizing cost and logistics footprint."[emphasis added]**

Stockage Effectiveness and Mission Capability Were the Primary Performance Objectives Measured on the Lockheed Martin Contract

~~(FOUO)~~ Lockheed Martin exceeded its minimum performance thresholds for stockage effectiveness and mission capability (MICAP) hours during each of its performance periods from February 2007[8] through January 2013. According to the "C-130J Long Term Sustainment Surveillance Plan," dated February 1, 2011, stockage effectiveness is the rate at which a main operating base is able to fulfill base-level requests for spare parts with an off-the-shelf item. The surveillance plan defines MICAP hours as the average length of time in which parts, affecting the mission capability of an aircraft, are backordered. During the 6-year period from February 2007 through

[8] The Lockheed Martin contract was awarded in February 2006, but the Tactical Airlift Division contracting officer added the stockage effectiveness and MICAP hours metric to the contract in February 2007.

~~(FOUO)~~ January 2013, Lockheed Martin earned about $[redacted] in award fees by exceeding the minimum performance requirements for stockage effectiveness and MICAP hours. See Figures 2 and 3 for illustrations, which show that Lockheed Martin exceeded its performance requirements for stockage effectiveness and MICAP hours performance.

Figure 2. Lockheed Martin Stockage Effectiveness Rates by Evaluation Period (February 2007 through January 2013)

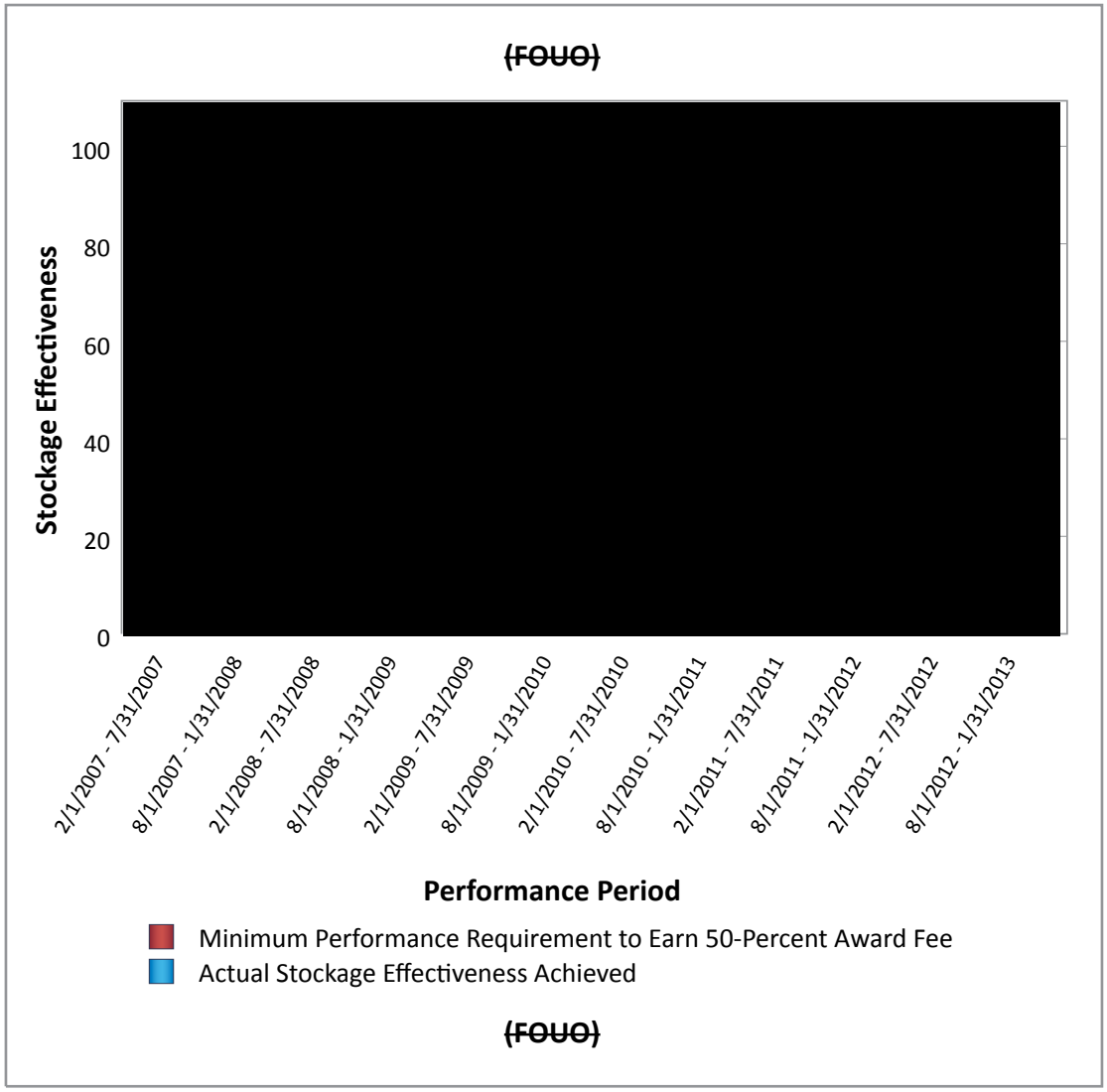
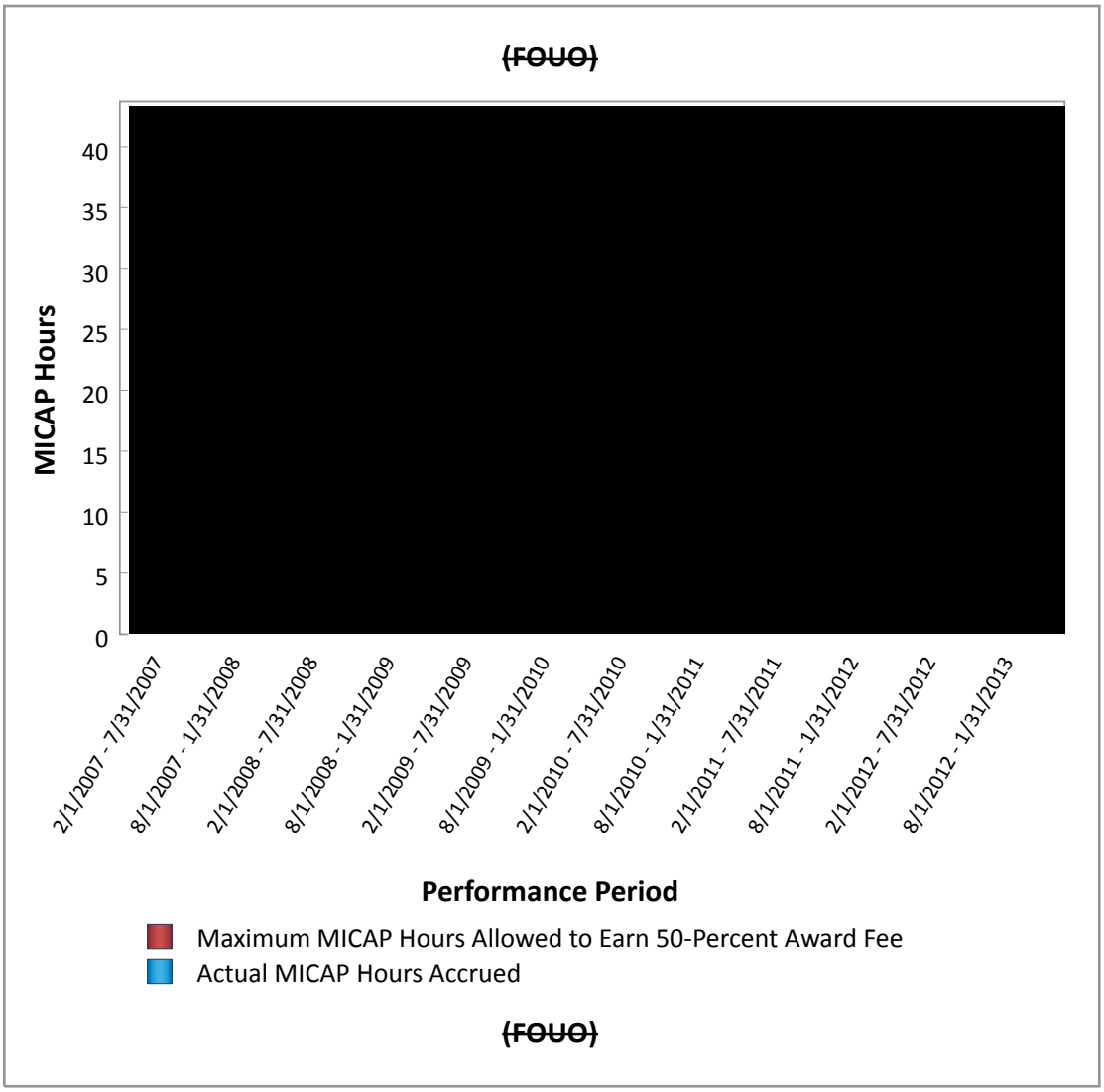


Figure 3. Lockheed Martin MICAP Hours Accrued by Evaluation Period (February 2007 through January 2013)



~~(FOUO)~~ Lockheed Martin has consistently exceeded the performance thresholds for each of their material management metrics by acquiring surplus inventories of spare parts. [redacted] In November 2013, Lockheed Martin provided the following explanation for 20 of the 120 sample items with excess inventories totaling about $[redacted]

~~(FOUO)~~ [redacted]

~~(FOUO)~~ The following sections provide examples on 2 of the 20 parts in which [redacted] motivated Lockheed Martin to excessively stockpile inventory. See Appendix E for details on the excess dollar values and years of inventory for the 20 parts.

Purchases of [redacted] Were Excessive

~~(FOUO)~~ The [redacted] (see Figure 4). As of July 2013, the Air Force owned [redacted] despite Lockheed Martin's demand forecast showing anticipated requirements of only [redacted] per year over the next 4 years. At a cost of nearly $[redacted], Lockheed Martin accumulated enough inventory of this part to last approximately [redacted] at the expected rates of use.

Figure 4. Hose Anti-Ice System

The Air Force Owns More [redacted] Than Needed

~~(FOUO)~~ The [redacted] As of July 2013, the Air Force owned [redacted] despite Lockheed Martin's demand forecast showing anticipated requirements of only [redacted] per year over the next 4 years. Lockheed Martin accumulated approximately [redacted]' worth of this part at a cost of approximately $[redacted].

Engine and Propeller Availability Were the Primary Performance Objectives Measured on the Rolls-Royce Contract

Rolls-Royce exceeded the minimum requirements for its primary performance metrics of engine and propeller availability. According to the "C-130J Propulsion Incentive Plan," dated February 1, 2012, engine and propeller availability objectives are measured as the percentage of the AE2100D3 engine or R-391 propeller fleet, or both, used on the C-130J, that are in mission-capable condition. Rolls-Royce has consistently achieved monthly engine availability rates exceeding 90.6 percent and propeller availability rates exceeding 89 percent for all C-130J variants. Table 4 shows Rolls-Royce's successful performance for engine and propeller availability on the AE2100D3 engine or R-391 propeller fleet, or both, during the February 2012 through January 2013 performance period.

Table 4. AE2100D3 Engine and R-391 Propeller Availability Performance (February 2012 through January 2013)

C-130J Variants	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan
C/ WC-130J Engine	94.6	93.2	93.3	94.2	95.0	95.4	95.9	95.2	95.0	95.0	95.5	94.6
	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6	91.6
EC-130J Engine	96.4	96.9	96.9	96.9	98.2	100.0	97.2	93.8	93.8	95.5	96.9	97.3
	90.6	90.6	90.6	90.6	90.6	90.6	90.6	90.6	90.6	90.6	90.6	90.6
HC/ MC-130J Engine	100.0	100.0	100.0	99.9	99.6	99.8	100.0	100.0	99.8	100.0	100.0	100.0
	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2
C/ EC-130J Propeller	96.2	95.4	95.6	95.5	96.1	96.7	96.7	96.0	96.2	96.2	96.2	95.7
	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0
WC-130J Propeller	94.1	92.8	90.1	91.3	92.9	92.0	91.1	91.3	95.0	89.8	97.3	97.5
	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0	89.0

Legend

Actual
Required

Rolls-Royce earned 86.3 percent,[9] or $3.9 million, of the $4.6 million total incentive fee for successful performance of the engine and propeller availability during the 12-month performance period. However, the C-130J long-term sustainment PBL contract did not include an inventory control metric that addressed excess inventory to minimize the amount of inventory. Operational availability alone is not adequate to measure

[9] Percentage may not calculate exactly due to rounding of available and earned incentive fees dollar amounts.

the contractor's performance against the desirable outcome of maximum efficiency in providing the warfighter with the right spare parts at the right time to support the warfighter mission. The following sections provide examples of parts in which the sole focus on operational availability motivated Rolls-Royce to accumulate excessive inventory on behalf of the Air Force.

Accumulation of De-icing Timing Unit Control Lane Was More Than Needed

The de-icing timing unit (DITU) control lane (NSN 6340-99-322-3456) determines the on/off times for de-icing the propellers. As of July 2013, the Air Force had an on-hand quantity of 47 units valued at $1.9 million, but historical usage showed that an average of 10 units were used annually from February 2009 through January 2013. Therefore, Rolls-Royce accumulated approximately 4.9 years of inventory with an excess inventory value of $1.1 million.

Usage Requirements for De-icing Timing Unit Did Not Justify On-Hand Quantities

The DITU (NSN 6645-99-733-6422) regulates the electrical power supplied to the de-icing elements on the propeller (See Figure 5). The Air Force had an on-hand quantity of 33 units, valued at $6.5 million, but historical usage showed that an average of 3 units were used annually from February 2009 through January 2013. Therefore, we determined that Rolls-Royce accumulated 12 years of inventory with an excess value of $5.4 million.

Figure 5. De-icing Timing Unit

Rolls-Royce officials acknowledged the excess stock but inappropriately deferred responsibility to its subcontractor, Dowty, who actually manufactures the parts. On November 6, 2013, in an e-mailed response to a DoD Office of Inspector General inquiry about the cause for the excess Dowty part, the Rolls-Royce official stated:

> As to the Dowty parts that you have identified, Rolls-Royce provides Dowty's provisioning numbers to the USAF [United States Air Force] on Dowty's behalf, as they are our sub-contractor on the Mission Care contract. **However, Rolls-Royce has no input or influence with respect to Dowty's provisioning number (In fact, Dowty considers its provisioning models to be trade secrets), and the number is simply passed through straight to the USAF without any Rolls-Royce modifications. As such, Rolls-Royce is unable to speak to any alleged excess Dowty parts at the site visit. [emphasis added]**

As a prime contractor, Rolls-Royce should be responsible for efficient provisioning by its subcontractors.

The Chief of the Tactical Airlift Division did not comply nor require Rolls-Royce to comply with the ASD(L&MR) guidance. The ASD(L&MR) memorandum "Maximum Utilization of Government-Owned Inventory in Performance-Based Logistics Arrangements" dated December 20, 2010, states when PBL arrangements use commercial sources, stocking objectives should be adjusted accordingly. As a prime contractor, Rolls-Royce should be responsible for efficient provisioning by its subcontractors. The lack of an inventory control metric gives Rolls-Royce no incentive to validate that the provisioned quantity provided by its subcontractor was accurate. Further, the spare parts acquired from Rolls-Royce are classified as commercial acquisitions; therefore, the spare parts should not require an excessive stock-level since the item should be readily available in the commercial market.

Inventory Control Metric is Needed to Measure the Efficiency of Lockheed Martin and Rolls-Royce Performance

~~(FOUO)~~ Tactical Airlift Division officials did not include an essential performance metric to measure and control the amount of the Government-owned inventory stockpiled to support the C-130J airframe and propulsion system. Lockheed Martin and Rolls-Royce exceeded performance requirements for operational availability, but the Tactical Airlift Division officials did not include an inventory-control metric to assess how efficiently the contractors could meet availability demands. As a result, our sample review of C-130J spare parts, valued at approximately $[redacted] in inventory, significantly exceeded the amount required to support the next 2 to 3 years'

~~(FOUO)~~ worth of aircraft requirements by $[redacted] for Lockheed Martin parts and $17.1 million for Rolls-Royce parts.

Therefore, the PEO for Air Force Mobility Programs should require the Chief, Tactical Airlift Division to:

- establish C-130J-unique performance-based inventory control objectives that are measurable and capable of being monitored; and
- perform a thorough review of all C-130J-unique inventory, establish reasonable inventory objectives for Lockheed Martin noncommercial spare parts and Rolls-Royce commercially-acquired spare parts, and reduce future contract costs by the value of excess on-hand inventory that exceeds the objectives.

Rolls-Royce Reliability Data Used to Establish C-130J Inventory Levels Were Inadequate

The Chief, Tactical Airlift division did not require Rolls-Royce to track Air Force–specific reliability data for Rolls-Royce spare parts to forecast future inventory needs. Rolls-Royce's use of reliability data for all of its customers (that is, including the Air Force, Navy, foreign military, and commercial industry) to establish the Air Force inventory levels was inadequate. According to a Rolls-Royce customer support manager, Rolls-Royce could not perform an Air Force–specific demand forecast because the reliability data were calculated across all their customers. Specifically, the Rolls-Royce manager stated that Air Force–specific factors such as terrain, age of the aircraft, and other factors prevented Rolls-Royce from accurately applying fleet-wide statistics to the Air Force subset.

Rolls-Royce's use of reliability data for all of its customers to establish the Air Force inventory levels was inadequate.

Further, during a site visit to the Rolls-Royce ICP in November 2013, a Rolls-Royce manager stated that the Air Force had the capability to track its part failures and reliability data. However, according to a supply and maintenance official from the 403rd Wing, Air Force Reserve, the Air Force did not formally track and report failure and reliability data. Specifically, the Air Force Reserve official stated in an e-mail, dated January 10, 2014, that:

The Air Force did not formally track and report failure and reliability data.

> **The general consensus thus far is that there is no reporting of reliability failures to the LMCO [Lockheed Martin Corporation] or RR [Rolls-Royce]**. However, because there are field service reps on-site, if there are any problems encountered, our maintenance personnel has the immediate privilege of direct customer support. **[emphasis added]**

Additionally, Rolls-Royce did not establish annual demand forecasts for spare parts, and as a general practice, replenished stock levels at the original authorized level without reviewing and adjusting stock objectives based on the Air Force actual usage. According to a Rolls-Royce manager, it was the Air Force's responsibility to re-evaluate approved inventory levels, and Rolls-Royce was obligated to replenish stock to the approved level. In an e mail dated, December 5, 2013, the Rolls-Royce manager stated:

Rolls-Royce did not establish annual demand forecasts for spare parts.

> The Air Force is solely responsible for evaluating Rolls-Royce's annual recommendations for spare parts inventory levels and, thereafter, for determining its spare parts inventory levels and any annual spare parts buys. Once the Air Force has determined inventory levels and upon receipt of a replenishment order, Rolls-Royce is contractually obligated to fulfill the order and deliver replenishment stock.
>
> Rolls-Royce's ability to address potential excess spare parts inventory is limited to recommending to the Air Force that it make no additional buys of a particular part during annual provisioning and to reallocate the inventory from one base to another base that has a particular need.

DoD Manual 4140.01 (DoDM 4140.01),[10] "DoD Supply Chain Materiel Management Procedures," Volume 2, "DoD Supply Chain Materiel Management Procedures: Demand and Supply Planning," February 10, 2014, requires DoD Components to develop forecasts based on models that consider only historical demand, combined future program data with historical demand or failure data, and past and future program data.[11] However, the Chief, Tactical Airlift Division did not track nor require Rolls-Royce to track Air Force failure data, and, therefore, could not properly forecast annual demand of spare parts needed to support the C-130J aircraft. Further, Rolls-Royce's practice of replenishing spare parts at the authorized stock level, without the Air Force or

[10] On February 10, 2014, DoDM 4140.01 was issued and replaced DoD Regulation 4140.1-R (DoD 4140.1-R), "DoD Supply Chain Materiel Management Regulation," May 23, 2003.

[11] Previous DoD 4140.1-R provided the same guidance regarding DoD Components developing forecasts before it was replaced by DoDM 4140.01.

Rolls-Royce annually revaluating whether the authorized stock level remained appropriate, perpetuated the excessive inventory issue.

The PEO for Air Force Mobility Programs should direct the Chief, Tactical Airlift Division to:

- track, record, and report Air Force C-130J failure data to Rolls-Royce; and
- request Rolls-Royce to include the Air Force–specific failure data into its forecast model to improve the accuracy of demand forecast for C-130J engine and propulsion system spare parts.

Inventory Acquired Without a Bona Fide Need Risked Potential Antideficiency Act Violations

The Chief, Tactical Airlift Division used O&M funds to satisfy C-130J inventory requirements for sustainment that may not have been a bona fide need for the 12-month statutory period of availability, potentially violating the ADA. Our review of 120 statistically sampled Lockheed Martin–supplied inventory items revealed that the Air Force accumulated:

- (~~FOUO~~) inventory for 27 parts that ranged from [redacted] of inventory; and
- (~~FOUO~~) one part that had [redacted].

(~~FOUO~~) The 28 parts accounted for $[redacted] of the excess inventory purchased from Lockheed Martin within our sample review. Additionally, our review of 88 Rolls-Royce-supplied parts identified that the Air Force accumulated:

- Thirty-one parts with years of inventory ranging from 5 through 75 years;
- Four parts with more than 110 years of inventory; and
- Nine parts that had no historical usage within the previous 4-year period from February 2009 through January 2013.

The total 44 parts accounted for $13.2 million of the excess inventory purchased from Rolls-Royce within the sample review.

DoD Regulation 7000.14-R, "Financial Management Regulation," volume 14, "Administrative Control of Funds and Antideficiency Violations, chapter 1, "Administrative Control of Funds," states, "DoD officials to whom funds are entrusted must determine that the obligation and expenditure of funds provide for a bona fide need of the period of availability of the fund."

Additionally, chapter 2, states that an ADA violation can occur when obligations or expenditures of funds do not provide for a bona fide need in the period in which they were expended and funds to correct such errors are not available."

During a meeting in January 2014, Assistant Secretary of the Air Force (Financial Management and Comptroller) officials expressed concern with the Air Force's use of O&M funds and the risk of potential ADA violations that may occur from the purchase of so many years of inventory without a bona fide need.

Therefore, the Assistant Secretary of the Air Force (Financial Management and Comptroller) officials should perform a preliminary review of O&M expenditures made on both the Lockheed Martin and Rolls-Royce contracts for C-130J-unique spare parts to determine if there was a bona fide need during the 1-year appropriation period of availability and whether any potential Antideficiency Act violations occurred.

Specific Guidance Needed for Materiel Retention Under Performance-Based Logistics Arrangements

The ASD(L&MR) and DPAP did not establish specific requirements regarding controls for proper retention, reuse, and disposal of DoD inventory managed by contractors under PBL service arrangements. DoDM 4140.01, Volume 6, "DoD Supply Chain Materiel Management Procedures: Materiel Returns, Retention, and Disposition," February 10, 2014, requires Military Departments to establish procedures for retention, redistribution, and disposal of excess inventory with no foreseen demand. However, according to an ASD(L&MR) official and contributing author, the DoDM 4140.01 requirement to categorize inventory requirements only applied to DoD Components that managed inventory and did not apply the same requirement to contractors that manage DoD-owned inventory under a PBL arrangement. The ASD(L&MR) official

The ASD(L&MR) official indicated that…PBL acquisition strategies…make it difficult for DoD to effectively monitor inventory retention.

indicated that, under current DoDM 4140.01 guidance, PBL acquisition strategies in which the contractor manages DoD inventory make it difficult for DoD to effectively monitor inventory retention. The limitation occurs because the contractor develops the inventory requirements to meet the contract deliverable, which was availability for the Air Force C-130J PBL contracts. DoDM 4140.01, Volume 6, requires DoD Components to properly categorize inventory into four categories. Specifically, the manual states:

> a. The DoD Components will:
>
> (1) Ensure that all wholesale inventory, regardless of location, is properly categorized with regard to retention and that mechanisms are in place to take proper retention, redistribution, and disposal actions against those inventories.
>
> (2) Stratify secondary items as AAO [approved acquisition objective] stock, ERS [economic retention stock], CRS [contingency retention stock], and PRS [potential reutilization stock].[12]

The four categories of inventory are defined as:

- Approved Acquisition Objective. The quantity of items authorized for peace time and war time requirements.
- Economic Retention Stock. Stock above approved acquisition objective that is more economical to retain than to dispose of and then potentially repurchase.
- Contingency Retention Stock. Stock above the approved acquisition objective and economic retention stock level that is retained to support contingency operations.
- Potential Reuse Stock.[13] Stock above the sum of the approved acquisition objective, the economic retention stock, and the contingency retention stock that is reviewed for transfer to Defense Logistics Agency Disposition Services.

[12] Previous DoD 4140.1-R provided the same guidance regarding retention, redistribution and disposal procedures before it was replaced by DoDM 4140.01.

[13] DoDM 4140.01 refers to this stock as potential reutilization stock; however, in this report, it is referred to as potential reuse stock.

~~(FOUO)~~ DoD Components must categorize secondary items[14] into the categories to determine if the inventory is being managed efficiently and to prevent the retention of excess inventory. Without categorized inventory requirements under the PBL arrangements, the Air Force paid Lockheed Martin and Rolls-Royce to accumulate excess Air Force-owned inventory, including 10 different parts, valued at $[redacted], which [redacted]. See examples of inefficient management of the Lockheed Martin [redacted] and Rolls-Royce fuel spray nozzle in the sections below.

[redacted] *Did Not Have a Future Demand*

~~(FOUO)~~ [redacted] (see Figure 6). As of July 2013, the Air Force owned [redacted] valued at about $[redacted], despite Lockheed Martin's demand forecast [redacted]. [redacted] were acquired at the Air Force's directive to have a spare [redacted] on hand at each main operating base where the HC-130J and MC-130J variants would be stationed and an additional on-hand spare [redacted] at the ICP. According to a Tactical Airlift Division logistics official, the Navy Surface Warfare Center, located in Crane, Indiana, performed nonwarranty repairs of the [redacted] As a result of the Government-repair capabilities, the logistics official stated that the Tactical Airlift Division has begun transitioning the management of this part from Lockheed Martin to the Air Force.

[14] DoDM 4140.01, volume 6, defines a secondary item as an item of supply that is not defined as a principal item and includes reparable components, subsystems, and assemblies, consumable repair parts, bulk items, and material subsistence, and expendable end items, including clothing and other personal gear.

Figure 6

Fuel Spray Nozzle Had No Historical Usage

~~(FOUO)~~ The Air Force had no historical usage of the fuel spray nozzle (NSN 2915-01-446-6962) from February 2009 to January 2013. The fuel spray nozzle provides a pressurized spray of atomized fuel to the combustor (See Figure 7). As of July 2013, the Air Force had a quantity of 324 fuel spray nozzles on-hand in inventory, valued at $2 million. Rolls-Royce acknowledged that the part was a piloted fuel spray nozzle that had become obsolete and replaced by a pure air blast fuel spray nozzle (NSN 2915-01-542-9850), which was purchased at a [redacted] discount. As a result of our inquiry, Rolls-Royce officials determined that 324 fuel spray nozzles, valued at $2 million, should be transferred from Air Force inventory to Rolls-Royce, and initiated the transfer. Specifically, Roll Royce officials stated, "As a result of the IG's inquiry, Rolls-Royce determined that each of the 324 nozzles (Part No. 23073453) shown in USAF [United States Air Force] inventory at the ICP [inventory control point] actually belongs to Rolls-Royce."

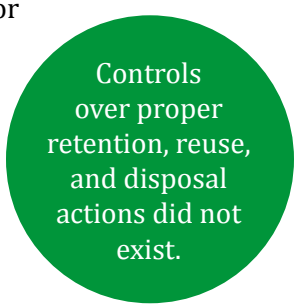
~~(FOUO)~~ Rolls Royce officials determined that 324 fuel spray nozzles, valued at $2 million, should be transferred from Air Force inventory to Rolls-Royce.

Figure 7. Fuel Spray Nozzle

Public Law 111-84, "National Defense Authorization Act for FY 2010," Section 328, "Improvement of Inventory Management Practices," October 28, 2009, requires the Secretary of Defense to develop a comprehensive plan to improve the inventory management systems of the military services, thereby reducing the acquisition and storage of excess secondary inventories. The plan must address overforecasting, achievement of total asset visibility, reduction of back-ordered inventories that are excess to requirements, validation of economic retention and contingency retention stock levels, and the potential reuse of stock that has no demand. The ASD(L&MR) issued the "Comprehensive Inventory Management Improvement Plan," October 2010, which established implementation guidance for the requirements of Public Law 111-84, section 328. The plan states that DoD must develop an annual review and reporting process for no-demand items, and specifically requires that the DoD:

- Stocks only those items with no demand that are essential to the ability of a weapon system to perform its mission without catastrophic failure; and
- Dispose of those items that are not needed to guard against the catastrophic failure of a weapon system.

We believe that the intent of section 328 of the public law and DoD guidance was to establish responsibility and procedures for cost-effective supply chain management of DoD inventory, regardless of whether a DoD Component or a contractor is managing the DoD inventory. The significant excess inventory identified in the examples for [redacted] and fuel spray nozzle (NSN 2915-01-446-6962), as well as eight other Air Force owned parts managed by Lockheed Martin and Rolls-Royce under the PBL contracts, indicated that controls over proper retention, reuse, and disposal actions did not exist.



The ASD(L&MR) should revise DoDM 4140.01, volume 6, to require contractors managing Government inventory under performance-based logistics contracts to:

- report on a biannual basis the following to the buying DoD Component:
    - inventory requirements that the contractor establishes to achieve the performance required by the contract;
    - existing Government inventory that the contractor manages against those requirements; and
    - existing Government inventory that the contractor manages in excess of those requirements.
- submit a written plan for the buying DoD Component's approval that proposes actions for reuse or disposal of excess Government inventory under contractor management.

Additionally, the Director, DPAP should establish a contract clause for PBL contracts that requires contractors in coordination with the buying DoD Component to comply with a revised DoDM 4140.01, volume 6.

The PEO for Air Force Mobility Programs should:

- direct the Chief Tactical Airlift Division to review the current C-130J unique inventories for excess and obsolete spare parts and initiate disposal actions or reuse options such as contractor buyback for application on Navy, Coast Guard, foreign military, or commercial platforms; and

- require the Chief, Tactical Airlift Division and contracting officer to include clauses in the C-130J performance-based logistics contracts that require Lockheed Martin and Rolls-Royce to develop and implement a comprehensive inventory management plan that complies with DoDM 4140.01 and DPAP contract guidance, once revised.

Weak Controls Over Inventory Were Costly

~~(FOUO)~~ We statistically sampled Lockheed Martin parts purchased to support the C-130J airframe and identified an accumulation of excess inventory, totaling $[redacted]. Additionally, we nonstatistically sampled 88 of 536 unique Rolls-Royce parts purchased to support the engine and propulsion system and identified an accumulation of excess inventory totaling $17.1 million[15] that could be used to offset future contract requirements. See Table 5 for a summary of the Rolls-Royce sampled engine and propulsion items stratified by years of on-hand inventory.

Table 5. Excess Inventory for C-130J Engine and Propulsion System Spare Parts From Rolls-Royce

Years of Inventory On Hand	Number of Different Parts	Total On-Hand Inventory Value	Inventory Value (2 years)*	Excess Inventory Value
No Demand	9	$2,089,623	$0	$2,089,623
129-149	3	258,279	3,978	254,301
108-128	1	469	8	461
87-107	0	0	0	0
66-86	1	964	26	938
45-65	6	559,259	18,613	540,646
24-44	1	4,291	358	3,934
3-23	35	20,660,388	6,772,982	13,887,406
<3	32	63,544,571	63,263,313	281,258
Total	**88**	**$87,117,844**	**$70,059,278**	**$17,058,567**

Note: Totals do not equal the actual sum because of rounding.

* Rolls-Royce provided historical usage covering the 4-year period from February 2009 through January 2013. We calculated the average annual usage over the 4-year period and multiplied it by 2 years. We considered inventory levels of 2 years or less to be an acceptable allowance to cover forecasted operations and a reasonable reserve for commercial items which should be readily available.

~~(FOUO)~~ If corrective actions are not taken, the Air Force could accumulate an additional $[redacted] in excess inventory for Lockheed Martin parts and $4.9 million in excess inventory for Rolls-Royce parts over the remainder of the

[15] The actual Rolls-Royce excess inventory value of $17,058,567 was rounded to $17.1 million.

~~(FOUO)~~ contracts. Additionally, the Tactical Airlift Division potentially committed ADA violations (section 1502(a)), title 31 United States Code) by failing to identify a bona fide need for the periods in which O&M funds were available and used.

Other Matters of Interest on Lack of Defined Terms for Government Acceptance

The Chief, Tactical Airlift Division and Defense Contract Management Agency administrative contracting officer did not identify how and when Government acceptance would occur for spare parts acquired on the PBL service contracts as required by Defense Federal Acquisition Regulation Supplement, Procedures, Guidance, and Information (DFARS PGI) 245.4. It states that when property is acquired under a PBL support services contract to meet the deliverables on the contract, the contracting officer must ensure that the contract clearly defines how and when acceptance will be performed and includes applicable quality assurance, part marking, anticounterfeiting, or other requirements for the delivery of the property.

According to a Defense Procurement and Acquisition Policy (DPAP) official, the work performed under the Rolls-Royce PBL contract was described as support services. The DPAP official believed that the DFARS PGI requirement was applicable to the Rolls-Royce PBL contract; however, the contracting officer did not define the methods for acceptance of the spare parts in the contract. During a review of the Lockheed Martin PBL contract, the DPAP official stated that the deliverable described under the statement of work was unclear and inconsistent with the contract line item number description. Specifically, the statement of work described the deliverable as material to replenish unserviceable spare parts, but the contract line item description was service support for flight hours. Therefore, the DPAP official could not determine the applicability of the DFARS PGI guidance on acceptance to the Lockheed Martin PBL contract.

DoDM 4140.01, Volume 5, "DoD Supply Chain Materiel Management Procedures: Deliver of Materiel," February 10, 2014, did not adequately establish requirements for Government acceptance of property at contractor-operated sites that was ordered by a contractor as part of services paid for by the Government under PBL arrangements. The guidance only addressed situations when the Government purchases direct material that is received at contractor-operated sites. DoDM 4140.01 states:

a. For receipt processing, DoD Components will:

(5) Make special arrangements for government personnel to perform acceptance at contractor-operated sites that receive **materiel ordered and paid for by the government directly from a commercial source**. Only U.S. Government personnel can perform acceptance of materiel as a specific task separate from receiving. Accomplish acknowledgment of receipt electronically whenever possible and send notification to the appropriate contracting personnel. **[emphasis added]**

According to an ASD(L&MR) official, the requirement for Government acceptance of property at contractor-operated sites was intended to apply to all situations, including Government property ordered by the contractor as part of rendered PBL services. DPAP has issued guidance in the DFARS PGI 245.4 that requires the contracting officer to define in the contract how and when Government acceptance occurs on PBL service contracts; however, the DoDM 4104.01 does not specify when Government acceptance is required for PBL service contracts in situations where Government property is ordered and received by contractors as part of PBL support services.

Management Comments on the Finding and Our Response

The Principal Deputy, Assistant Secretary of the Air Force (Acquisition) disagreed with the general finding regarding the Air Force's inefficient management of spare parts, valued at $[redacted], and one of the three underlying causes, the use of O&M appropriations to purchase inventory without a bona fide need. The Principal Deputy agreed with the remaining two underlying causes, the lack of inventory control metrics and lack of Air Force-specific reliability data for Rolls-Royce spare parts.

Department of the Air Force Comments on Spare Parts Management

The Principal Deputy disagreed with our finding that the Chief Tactical Airlift Division and the contracting officer did not efficiently manage spare parts inventory valued at $[redacted], purchased from Lockheed Martin and Rolls-Royce on performance-based logistics (PBL) contracts for the long-term sustainment of the C-130J aircraft. The Principal Deputy stated that the Air Force's reliance on inaccurate forecasting models during the previous interim contractor support contract[16] resulted in the excess C-130J spare parts inventory owned by the Air Force.

[16] The interim support contract was a 5-year option contract awarded to Lockheed Martin that initially supported C-130J sustainment before the PBL contracts were awarded to Lockheed Martin and Rolls-Royce.

He stated that the contractors assumed all of the cost risk for the spare parts that are purchased on the PBL contracts as part of a service priced on a cost-per-flight hour. Additionally, the Principal Deputy stated that the firm-fixed-price PBL contract arrangement incentivized the contractors to control the inventory. The Principal Deputy stated that the audit did not consider the Air Force's reduction in the flying-hour rate through annual provisioning negotiations. Specifically, he stated that the Tactical Airlift Division identified and removed spare parts that were included in the proposed flying-hour rate cost calculation because sufficient inventory was on hand. The Principal Deputy stated that the removal of parts during the provisioning process has resulted in $40 million in savings, including $31 million in repair of reparables and $9 million in consumable parts since 2006. Further, he stated that none of the excess inventory identified by the DoD IG audit team was accumulated from the last 2 years of negotiations.

In addition, the Principal Deputy disagreed with the audit methodology for valuing the inventory and believed that it created a perception of inefficiency. Specifically, he stated that the majority of the Lockheed Martin spare parts inventory, [redacted], was purchased before the PBL contract started because the first nine years of the PBL long-term sustainment contract was only valued at $190.8 million. Further, the Principal Deputy stated that the DoD IG audit team inflated the total cost of the inventory parts reviewed by using current year pricing, and that the DoD IG audit team should have used the actual price paid at the time the parts were purchased because it would be more representative of program costs. He stated, for example, that the DoD IG audit team calculated procurement cost totaling $[redacted]), but he calculated the total cost to be $295,499 based on actual prices paid since 2006. The Principal Deputy stated that his research showed that the majority of the [redacted] were purchased before 2006 as a result of a "high failure rate." He also stated that for [redacted] ([redacted]), a significant number of MICAP hours existed, which contradicted the DoD IG audit team's determination that there was [redacted]. Specifically, the Principal Deputy Principal stated that the part received four deficiency reports since 2012, which accounted for 20 MICAP requisitions leading to 5,646 MICAP hours, which prevented the C-130J aircraft from performing its mission.

Department of the Air Force Comments on Operations and Maintenance Appropriations

The Principal Deputy stated O&M appropriations were used to purchase severable services and not spare parts. He stated that a bona fide need for the service existed during the period of O&M fund availability, and the replenishment spare parts were within the scope of the service provided.

Our Response

~~(FOUO)~~ The report finding did not imply that the entire stock of spare parts inventory was purchased on the PBL contract for long-term sustainment of the C-130J aircraft. The report finding stated that the inventory was managed under the PBL contract for long-term sustainment of the C-130J aircraft. Specifically, the report stated: "The Chief, Tactical Airlift Division and the contracting officer did not efficiently manage spare parts inventory, valued at $[redacted], under the Lockheed Martin and Rolls-Royce PBL contracts for the long-term sustainment of the C-130J aircraft." Additionally, we could not verify the $40 million in savings claimed by the Principal Deputy for repair of reparable and consumable parts because no substantiating data was provided by his office. According to an Air Force contracting chief, the Air Force did not negotiate the Lockheed Martin contract based on the cost analysis of individual parts. The contracting chief stated that the contracting team determined that negotiating the bottom line contract price based on Lockheed Martin's past expenditures would establish a more favorable Government negotiating position. Therefore, we could not determine how the Principal Deputy calculated actual savings attributed to spare parts. Further, we depicted the inventory value, and not the program costs. Therefore, we applied the most recent negotiated acquisition unit prices provided by Lockheed Martin and Rolls-Royce, which was consistent with the contractors' Government-inventory reporting practices. In the Principal Deputy's example for the [redacted], he only applied historical unit prices to inventory quantities acquired since 2006, but we applied the most recent negotiated unit price to the total inventory quantity including items acquired before 2006. Additionally, the 20 MICAP requisitions and 5,646 MICAP hours for the [redacted] were not consistent with the forecasted demand of [redacted] provided by Lockheed Martin.

~~(FOUO)~~ The scopes of work for the PBL sustainment service contracts awarded to Lockheed Martin and Rolls-Royce both involved managing the entire process of planning requirements, purchasing parts, repairing parts and processing requisitions to provide the right parts at the right time in order to support aircraft hours flown. Therefore, the spare parts are a major portion of the deliverable being purchased. We acknowledge that a bona fide need for services existed, but the reported excess inventory of approximately $[redacted] for Lockheed Martin parts and $17.1 million for Rolls-Royce parts, indicated that the extent of the services and associated parts purchased from the contractors with 12-month O&M funds was excessive to the Air Force's need.

Recommendations, Management Comments, and Our Response

Revised Recommendations

As a result of ASD(L&MR) management comments, we revised draft Recommendation 1.b. to eliminate a conflict with Recommendation 3.b. Specifically, we deleted language regarding contractor compliance with the DoD comprehensive inventory management improvement plan.

Recommendation 1

We recommend the Program Executive Officer for Air Force Mobility Programs to:

a. Direct the Chief, Tactical Airlift Division to:

1. Establish and monitor C-130J-unique, performance-based, logistics inventory control metrics on the performance-based logistics contracts with Lockheed Martin and Rolls-Royce.

Department of the Air Force Comments

The Principal Deputy, Assistant Secretary of the Air Force (Acquisition), responding for the Program Executive Officer for Air Force Mobility Programs, disagreed, stating that establishing an inventory control metric conflicts with the basic principle of a PBL contract to share the risk between the Government and the contractor. The Principal Deputy stated that establishing an inventory control metric would shift the risk from the contractor to the Government. Additionally, the Principal Deputy stated that an inventory control metric was not necessary because the contractor owned the C-130J spare parts inventory. He stated that the Air Force does not take ownership of the consumable parts until it is issued to the user in the field. He also stated that

the Air Force has inventory control measures established during contract negotiation and annual provisioning which factors in perceived excess inventory into the following year's proposed requirements. Therefore, the Principal Deputy stated that the use of inventory control metrics was not appropriate.

Our Response

Comments from the Principal Deputy did not address all specifics of the recommendation. Inventory control metrics do not go against the basic principles of PBL contracts. In fact, the size of inventory, or logistics footprint, is one of the primary measurable desired outcomes of PBL arrangements, according to the Under Secretary of Defense for Acquisition, Technology, and Logistics memorandum, "Performance Based Logistics: Purchasing Using Performance Based Criteria," August 16, 2004 and DoD Directive 5000.01. Additionally, inventory control metrics do not place the risk on the Government, as stated by the Principal Deputy. Performance-based metrics actually require the contractor to share the risk because payments are contingent on successful contractor performance. The Principal Deputy also stated that inventory control metrics were not required because the Air Force did not own the inventory. However, he later stated that inventory control measures were already in place, and the Air Force owned the inventory. Further, the analysis of contractor-proposed new buys during the annual provisioning process based on Air Force-owned excess inventory does not involve evaluation of authorized stocking levels. Without evaluating the appropriateness of the authorized stocking levels, the parts replenishment will perpetuate excess inventory. We request that the Principal Deputy reconsider and clarify his position on the establishment of an inventory-control metric and Air Force ownership of the C-130J spare parts inventory. We request that the Principal Deputy provide comments to the final report by October 22, 2014.

2. Perform a thorough review of all C-130J-unique inventory to:

i. Establish a reasonable inventory objective for noncommercial spare parts purchased from Lockheed Martin and reduce future performance-based logistics contract costs by the value of excess on-hand inventory that exceeds the requirement.

ii. Establish a reasonable inventory objective for commercial spare parts purchased from Rolls-Royce and reduce future performance-based logistics contract costs by the value of excess on-hand inventory that exceeds the requirement.

Department of the Air Force Comments

The Principal Deputy, Assistant Secretary of the Air Force (Acquisition), responding for the Program Executive Officer for Air Force Mobility Programs, agreed, stating that he already has established robust inventory control measures that involve analyzing contractor-proposed inventory and adjusting proposed quantity buys based on the sufficiency of Air Force-owned inventory on hand.

Our Response

Comments from the Principal Deputy did not address all specifics of the recommendation. According to an Air Force contracting chief, the Air Force did not evaluate individual spare parts as part of its contract negotiations with Lockheed Martin. Instead, the Air Force negotiated the bottom line cost-per-flight hour service cost based on Lockheed Martin past expenditures. Therefore, the Air Force could not have analyzed the contractor-proposed spare parts inventory and adjusted quantity buys based on Air Force-owned inventory on hand. During the audit, the Air Force did not provide any documentation to substantiate the implementation of the Principal Deputy's inventory control measures. We commend the Air Force for not buying spare parts for new authorized stocking levels proposed by Rolls-Royce in the 2012 provisioning schedule for 24 parts with 20 or more years of inventory. However, the contractual requirement for Rolls-Royce to replenish spare parts back to possibly excessive authorized stocking levels may result in future inflated inventory costs. We request that the Principal Deputy provide comments to the final report regarding improvements in analyzing Lockheed Martin proposed parts purchases individually against on-hand, Air Force owned inventory and adjusting quantity purchases accordingly. Additionally, we request that the Principal Deputy provide comments to the final report on corrective actions to adjust authorized stocking levels for Rolls-Royce spare parts and apply any excess inventory to future requirements to reduce contract costs. We request that the Principal Deputy provide comments to the final report by October 22, 2014.

3. Track, record, and report Air Force C-130J failure data to Rolls-Royce.

Department of the Air Force Comments

The Principal Deputy, Assistant Secretary of the Air Force (Acquisition), responding for the Program Executive Officer for Air Force Mobility Programs, agreed, stating that the PBL contract already requires Rolls-Royce to track, record, and report Air Force-specific C-130J failure data as part of the logistics support services and no corrective action was required.

Our Response

Comments from the Principal Deputy did not address all specifics of the recommendation. The Principal Deputy stated that Rolls-Royce is already obligated by the contract to track Air Force failure data. However, according to a Rolls-Royce manager, Rolls-Royce is only able to track requisition data and he also stated that the Air Force was capable of tracking its own failure data. Comments from the Principal Deputy are not consistent with the responses provided by Rolls-Royce. We request that the Principal Deputy provide comments to the final report regarding the negotiated contract terms that require Rolls-Royce to track Air Force-specific C-130J spare parts failure data by October 22, 2014.

4. **Request Rolls-Royce to include the Air Force–specific failure data into its forecast model on an annual basis to improve the accuracy of demand forecast on the performance-based logistics contract for the C-130J engine and propulsion system spare parts.**

Department of the Air Force Comments

The Principal Deputy, Assistant Secretary of the Air Force (Acquisition), responding for the Program Executive Officer for Air Force Mobility Programs, agreed, stating that on August 1, 2014, Rolls-Royce proposed FY2015 provisioning requirements based on AE2100D3 engine fleet-wide failure data and Air Force-specific usage data. He stated that due to short timeframes, the Rolls-Royce provisioning model could not filter Air Force-specific failure data. Therefore, the Principal Deputy stated that by September 30, 2014, the Air Force will analyze the Air Force-specific usage data only to support FY2015 inventory requirements. He stated that the program office will direct Rolls-Royce to modify its provisioning model for FY2016 inventory requirements to include Air Force-specific failure and usage data along with fleet-wide failure and usage data. However, the Principal Deputy stated that the requirement may drive additional cost to the Government. The Principal Deputy stated that completion of the FY2016 provisioning analysis is planned for August 1, 2015.

Our Response

Comments from the Principal Deputy addressed all specifics of the recommendation, and no further action is required. Although the program office may incur additional contract costs by requiring Rolls-Royce to modify its provisioning model to include Air-Force specific failure and usage data, we believe that reduced future life-cycle costs as a result of accurate forecasting is in the best interest of the Air Force.

5. Review the current C-130J-unique inventories for excess and obsolete spare parts and initiate disposal actions or reuse options such as contractor buyback for application on Navy, Coast Guard, foreign military, or commercial platforms.

Department of the Air Force Comments

The Principal Deputy, Assistant Secretary of the Air Force (Acquisition), responding for the Program Executive Officer for Air Force Mobility Programs, agreed, stating that the program office tasked Lockheed Martin to identify potential obsolete parts in the global inventory and parts that were not part of the current C-130J configuration by September 12, 2014. He also stated that the program office tasked Rolls-Royce to perform a comprehensive inventory of all parts on hand and identify potential obsolete parts for the C-130J configuration by September 12, 2014. The Principal Deputy stated that the program office will dispose of or reuse any identified obsolete parts in accordance with the recommendation. He also stated that identifying and disposing of excess inventory would be premature because parts will be needed to support C-130J aircraft production which is scheduled through FY2022. Therefore, he stated that an accurate forecast of inventory needed versus excess inventory would not be available until FY2020. The Principal Deputy stated that the program office has established a process for reuse and redistribution of excess inventory with Navy and Coast Guard users of the C-130J aircraft.

Our Response

Comments from the Principal Deputy did not address all specifics of the recommendation. The Principal Deputy's postponement of the review to identify excess inventory until FY2020 risks further waste within DoD. Although the C-130J aircraft is still in production, the program office appears to be holding more inventory than is needed to sustain the C-130J aircraft after the production phase. As presented in the audit report, we identified several parts with over 20 years of inventory. While the Principal Deputy's reutilization and redistribution process with other military users is commendable, it would only be effective if the excess inventory was identified in advance of the FY2020 timeframe. Also, by identifying the excess inventory in advance of FY2020, the Air Force may avoid wasting additional funding as a result of holding inventory that may not be needed to meet requirements. We request that the Principal Deputy provide comments to the final report, by October 22, 2014, on a reasonable completion date for the review, identification, and plan for removal of C-130J spare parts excess inventory in order to prevent further excessive waste within DoD.

b. Direct the Chief, Tactical Airlift Division and the contracting officer to include clauses in the C-130J performance-based logistics contracts that require Lockheed Martin and Rolls-Royce to develop and implement a comprehensive inventory management plan that complies with DoD Manual 4140.01 and Director, Defense Procurement and Acquisition Policy contract guidance, once revised.

Department of the Air Force Comments

The Principal Deputy, Assistant Secretary of the Air Force (Acquisition), responding for the Program Executive Officer for Air Force Mobility Programs, agreed, stating he believed the PBL contractual deliverables comply with the current requirements in the DoD Manual 4140.01; however, after the DoD Manual 4140.01 is revised, the program office will modify the contracts to require Lockheed Martin and Rolls-Royce to revise the supply support plans according to new requirements.

Our Response

Comments from the Principal Deputy addressed all specifics of the recommendation, and no further action is required.

Recommendation 2

We recommend the Assistant Secretary of the Air Force (Financial Management and Comptroller) perform a preliminary review of operations and maintenance expenditures made on both the Lockheed Martin and Rolls-Royce contracts for C-130J-unique spare parts to determine if there was a bona fide need during the 1-year appropriation period of availability and whether any potential Antideficiency Act violations occurred.

Department of the Air Force Comments

The Director, Accounting, and Reporting Financial Operations (Financial Management), responding for the Assistant Secretary of the Air Force (Financial Management and Comptroller), agreed, stating that his office will perform a coordinated review with the Secretary of the Air Force Office of the General Counsel to determine if an ADA investigation is necessary. The Director estimated that the review will be completed no later than December 30, 2014.

Our Response

Comments from the Director addressed all specifics of the recommendation, and no further comments are required.

Recommendation 3

We recommend that the Assistant Secretary of Defense Logistics and Materiel Readiness revise DoD Manual 4140.01, Volume 6, to require contractors managing Government inventory under performance-based logistics contracts to:

a. **Report, on a biannual basis. the following to the buying DoD Component: inventory requirements that the contractor establishes to achieve the performance required by the contract; existing Government inventory that the contractor manages against those requirements; and existing Government inventory that the contractor holds in excess of those requirements.**

b. **Submit a written plan for the buying DoD Component's approval that proposes actions for reuse or disposal of excess Government inventory under contractor management.**

Assistant Secretary of Defense for Logistics and Materiel Management Comments

The Acting ASD(L&MR), agreed, stating that DoD Manual 4140.01, Volume 6 will be revised to require contactors managing Government inventory under all sustainment contracts, to biannually report the inventory requirements for the Government inventory, existing Government inventory that the contractor manages against those requirements; and existing Government inventory that the contractor holds in excess of those requirements. He also stated that the revised DoD Manual 4140.01, Volume 6, will require the contractors managing Government inventory under all sustainment contracts, to submit a written plan for the buying DoD Component's approval that proposes actions for reuse or disposal of excess Government inventory under contractor management. The Acting ASD(L&MR) estimated the revision will occur by the fourth quarter of FY2015.

Our Response

Comments from the Acting ASD(L&MR) addressed all specifics of the recommendation, and no further comments are required.

Recommendation 4

We recommend the Director, Defense Procurement and Acquisition Policy to establish a contract clause for performance-based logistics contracts that requires contractors in coordination with the buying DoD Component to comply with the revised DoD Manual 4140.01, Volume 6, in Recommendation 3.

Assistant Secretary of Defense for Logistics and Materiel Management Comments

The Acting ASD(L&MR), responding for the Director, DPAP, agreed, stating that the Director, DPAP will establish a contract clause that is applicable to all sustainment contracts no later than 18 months after ASD(L&MR) revises DoD Manual 4140.01, Volume 6.

Our Response

Comments from the Acting ASD(L&MR) addressed all specifics of the recommendation, and no further comments are required.

Appendix A

Scope and Methodology

We conducted this performance audit from May 2013 through June 2014 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.

Interviews and Documentation

We met with Air Force representatives from the Assistant Secretary of the Air Force (Financial Management and Comptroller), the Tactical Airlift Division, and the 330th Tactical Airlift Sustainment Group. We also interviewed contractor personnel from Lockheed Martin in Marietta, Georgia, and Biloxi, Mississippi; and Rolls-Royce in Indianapolis, Indiana.

We reviewed C-130J long-term, sustainment PBL contracts FA8504-06-D-0001 and FA8504-07-D-0001 awarded to Lockheed Martin and Rolls-Royce, acquisition planning and other related contract documents dated from June 2005 through February 2014. We reviewed sustainment-related line items valued at $190.8 million on contract FA8504-06-D-0001 and sustainment-related line items valued at $463 million on contract FA8504-07-D-0001. Additionally, we reviewed inventory quantities, unit prices, inventory management requirements, performance metrics, and funding sources for both contracts.

We reviewed Public Law 111-84, DFARS, DoDM 4140.01, DoDM 4140.64, "Secondary Item Stratification Manual," updated August 24, 2009, and ASD(L&MR) memorandum for guidance on DoD inventory management. We also reviewed an Under Secretary of Defense for Acquisition, Technology, and Logistics memorandum for guidance on performance-based logistics contracting requirements. Further, we reviewed section 1502(a), title 31 United States Code, and DoD Regulation 7000.14-R related to the proper use of appropriated funds.

Excess Inventory Analysis

We reviewed existing inventory quantities for each part and forecasted demand or historical usage to determine whether the existing inventory was sufficient to meet

anticipated contract requirements before purchasing more inventory to support C-130J flight hours. We determined that any on-hand inventory that exceeded a 2-year active inventory requirement for commercial acquisitions and a 3-year requirement (2-year active and 1-year reserve) for noncommercial acquisitions, based on an estimated demand or historical usage, to be excess inventory. We determined the active inventory requirement for spare parts in accordance with DoD Manual 4140.64, which we applied as a best practice. We did not consider a reserve requirement for commercial parts because commercial parts should be readily available, and large stockpiles of these parts should not be required because of this availability.

Lockheed Martin Parts

~~(FOUO)~~ To determine the quantity of existing Air Force–owned inventory that could be used to meet contract requirements, we reviewed on-hand inventory provided as of July 2013 and demand data as of August 2013. We calculated the annual demand requirement by dividing Lockheed Martin's 4-year demand quantity forecasts over 4 years. We calculated the years of inventory by dividing the on-hand quantities by the annual demand quantities. We considered up to 3 years of inventory to be an acceptable level to cover current operations plus a reasonable reserve. Therefore, we multiplied the annual demand requirement by 3 years. Any on-hand inventory beyond 3 years was considered to be excess inventory. We calculated the total excess inventory value by multiplying the excess quantities by the unit prices, provided by Lockheed Martin. For example, for [redacted]" the inventory on hand was [redacted] at a unit price of $[redacted] each, which totaled $[redacted]. The 3-year demand forecast for this part was [redacted], valued at $[redacted]. Therefore, [redacted] of the [redacted] were considered to be acceptable inventory, and the remaining [redacted], valued at $[redacted], were considered excess to requirements.

Rolls-Royce Parts

To determine whether the on-hand quantity was excess to the Air Force contract requirements for the C-130J propulsion system PBTH, we compared the on-hand quantities as of July 9, 2013, and the annual historical usage from the 4-year period of February 2009 through January 2013 provided by Rolls-Royce. We calculated the annual historical usage requirement by dividing the 4-year usage quantity over 4 years. Rolls-Royce did not forecast demand requirements; therefore, we reviewed historical usage. We calculated the years of inventory by dividing the on-hand quantities by the annual historical usage. We considered inventory levels of 2 years to be a reasonable objective to cover forecasted operations and a reasonable reserve

because the Rolls-Royce parts were commercial items. We determined that parts with on-hand quantity greater than two times the annual historical usage to be excess to requirements. We calculated the total excess inventory value by multiplying Rolls-Royce's 2010 commercial catalogue unit prices by the excess quantities. For example, for NSN 2995-01-475-7538, "Starter," the inventory on hand was 43 units at a unit price of $44,418.59 each, which totaled $1.9 million. The 2-year reasonable inventory level for this part was 20 units, valued at $888,372. Therefore, 20 of the 43 units were considered to be acceptable inventory, and the remaining 23 units, valued at $1 million, were considered excess to requirements.

We nonstatistically sampled 88 parts from a population of 536 parts. The dollar value of the sample was $87.1 million from a population valued at $138.0 million. During the selection process we excluded parts that were not specifically acquired on the PBL contract to logistically support flight hours. A statistical sample and projection for Rolls-Royce parts were not calculated because Rolls-Royce was not able to provide Air Force specific historical consumption for each part individually.

Use of Computer-Processed Data

We relied on computer-processed data from the Electronic Document Access (EDA) system to identify and obtain contract documents and to identify the total obligated amount for each contract line item number under PBL contracts FA8504-06-D-0001 and FA8504-07-D-0001. EDA is a web-based document storage system that provides authorized users with secure online storage and access capabilities for DoD contracts, delivery orders, and modifications. During the audit, we evaluated the reliability of the EDA system by comparing contract documents extracted from EDA to the documents we obtained from the Tactical Airlift Division. We determined that the EDA system was sufficiently reliable for the purposes of this report.

During the audit, we relied on Lockheed Martin's and Rolls-Royce's inventory management system, GOLD, to obtain on-hand quantities for C-130J inventory stored at the contractor-managed ICP and Air Force managed retail locations. GOLD is a commercial off-the-shelf inventory system which provides users with global asset visibility and performs a variety of inventory management functions. We used the extracted data to perform our inventory analysis and evaluate the management efficiency of the global C-130J inventories.

We confirmed the reliability of the wholesale-level inventory quantity data from Lockheed Martin and Rolls-Royce's GOLD systems. Specifically, the Tactical Airlift Division's physical inventory inspection of the Lockheed Martin ICP at Keesler Air Force Base, Mississippi, conducted in February 2013, revealed that inventory accuracy exceeded 99.8 percent. Additionally, the Defense Contract Management Agency's review of Rolls-Royce's property management system, conducted in September 2013, included wholesale inventory managed by the GOLD system. The Defense Contract Management Agency determined that Rolls-Royce's property management system properly tracked and recorded movement of Government property throughout the operation and between facilities. Therefore, we determined that Lockheed Martin and Rolls-Royce GOLD systems were sufficiently reliable for the purposes of this report.

We also relied on retail-level inventory quantity data from the Air Force's Standard Base Supply System (SBSS) to evaluate the reasonableness of the global C-130J inventory levels. SBSS is an accounting system that is used to track supplies and equipment at the base level. We confirmed the reliability of the retail-level inventory quantity data from SBSS by reviewing Air Force Life Cycle Management and Policy Division records pertaining to the performance of scheduled physical inventory inspections. As of March 2014, 78 percent of the inventories accounted for in the SBSS were physically verified within the last year. Therefore, we determined that the retail-level inventory quantities obtained from SBSS was sufficiently reliable for the purposes of this report.

Use of Technical Assistance

During the audit, we relied on technical assistance provided by the DoD, Office of Inspector General, Quantitative Methods Division (QMD). The QMD analyst developed a single-stage stratified random sampling plan to take a statistical sample of Lockheed Martin spare parts and a nonstatistical sample of Rolls-Royce spare parts for further inventory analysis. See Appendix B for a detailed discussion on the statistical sampling methodology.

Prior Coverage

During the last 5 years, the Government Accountability Office (GAO), the Department of Defense Inspector General (DoD IG), and the Air Force Audit Agency issued 11 reports related to performance-based logistics contracts for the Air Force's C-130J *Hercules* aircraft or excess inventory within the DoD. Unrestricted GAO reports

can be accessed over the Internet at http://www.gao.gov. Unrestricted DoD IG reports can be accessed at http://www.dodig.mil/pubs/index.cfm. Unrestricted Air Force Audit Agency reports can be accessed from https://www.efoia.af.mil/palMain.aspx by clicking on Freedom of Information Act Reading Room and then selecting audit reports.

GAO

Report No. GAO-12-493, "Actions Underway to Implement Improvement Plan, but Steps Needed to Enhance Efforts," May 2012

Report No. GAO-11-569, "DoD Needs to Take Additional Actions to Address Challenges in Supply Chain Management," July 2011

Report No. GAO-11-240R, "DoD's 2010 Comprehensive Inventory Management Improvement Plan Addressed Statutory Requirements, But Faces Implementation Challenges," January 7, 2011

DoD IG

Report No. DODIG-2014-064, "Improved Management Needed for the F/A-18 Engine Performance-Based Logistics Contracts," April 25, 2014

Report No. DODIG-2013-073, "Use of Defense Logistics Agency Excess Parts for High Mobility Multipurpose Wheeled Vehicle Depot Repairs Will Reduce Costs," April 25, 2013

Report No. DODIG-2013-025, "Accountability Was Missing for Government Property Procured on the Army's Services Contract for Logistics Support of Stryker Vehicles," November 30, 2012

Report No. DODIG-2012-102, "Better Cost-Control Measures Are Needed on the Army's Cost-Reimbursable Services Contract for Logistics Support of Stryker Vehicles," June 18, 2012

Report No. DODIG-2012-004, "Changes Are Needed to the Army Contract with Sikorsky to Use Existing DoD Inventory and Control Costs at the Corpus Christi Army Depot," November 3, 2011

Report No. D-2011-061, "Excess Inventory and Contract Pricing Problems Jeopardize the Army Contract with Boeing to Support Corpus Christi Army Depot (Redacted)," May 3, 2011

Report No. D-2010-063, "Analysis of Air Force Secondary Power Logistics Solution Contract," May 21, 2010

Air Force

Report No. F2010-0003-FC3000, "Use of Performance Based Logistics in Air Force Programs," July 6, 2010

Appendix B

Sampling Methodology

We selected a statistical sample of part numbers from the population, as described below, for review to evaluate the cost effectiveness of material purchases made for the C-130J *Hercules* aircraft through the PBL contract with Lockheed Martin.

Sample Population

~~(FOUO)~~ We reviewed spreadsheets provided by Lockheed Martin, which included part numbers, descriptions, quantity, and unit prices of spare parts stocked at the contractor-managed ICP and Air Force–managed retail locations. As of July 2013, Lockheed Martin managed a universe of [redacted] C-130J-unique airframe parts,[1] valued at $[redacted].

Sample Design

~~(FOUO)~~ We designed a one-stage stratified sample plan for Lockheed Martin. From the Lockheed Martin universe of [redacted], we selected a statistical sample of 120 inventory items, valued at $[redacted].[2] See Table B-1 for details.

Table B-1: Lockheed Martin Sample Design

~~FOUO~~

Stratum	Stratum Population Size	Population Dollar Amount	Stratum Sample Size	Sample Dollar Amount
≥ $2,500,000	[redacted]	$[redacted]	33	$[redacted]
≥ $250,000, < 2,500,000	[redacted]	[redacted]	55	[redacted]
≥ $25,000, < 250,000	[redacted]	[redacted]	16	[redacted]
< $25,000	[redacted]	[redacted]	16	[redacted]
Total	[redacted]*	$[redacted]	**120**	$[redacted]

~~FOUO~~

~~(FOUO)~~[1] Lockheed Martin managed a universe of [redacted] different C-130J-unique airframe parts, valued at [redacted]. From those [redacted], we excluded [redacted] that were not purchased on the PBL contract FA8504-06-D-0001. Furthermore, sets of interchangeable part numbers, sharing the same form, fit, and function, were consolidated by assigning each set a single identification number. The consolidation resulted in a reduction of an additional [redacted] As a result, the universe was reduced from [redacted].

~~(FOUO)~~[2] The actual Lockheed Martin sample dollar value of [redacted] was rounded to $[redacted].

Lockheed Martin Sample Projection

~~(FOUO)~~ We are 95-percent confident that the dollar value of the excess inventory for the Lockheed Martin parts was between $[redacted], and the point estimate, or middle value, was $[redacted]. See Table B-2 for details on the projection results.

Table B-2: Lockheed Martin Statistical Projection Results

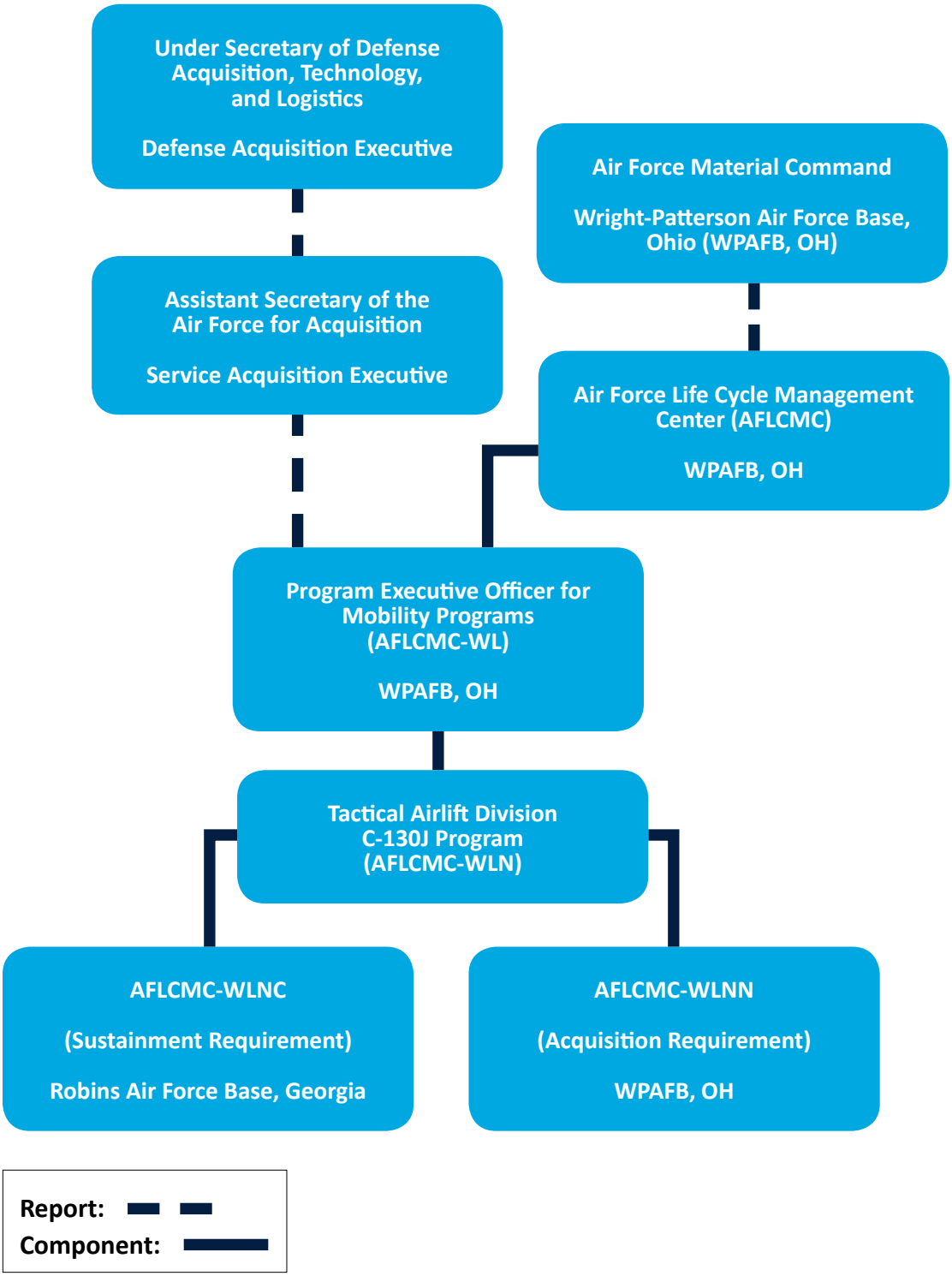
~~FOUO~~

Lower Bound	Point Estimate	Upper Bound
$[redacted]	$[redacted]	$[redacted]

~~FOUO~~

Appendix C

DoD Supporting Components of the C-130J Aircraft Sustainment Program



Appendix D

C-130J Inventory Distribution

Figure D-1. Lockheed Martin–Sourced Inventory Value Distribution by Percentage

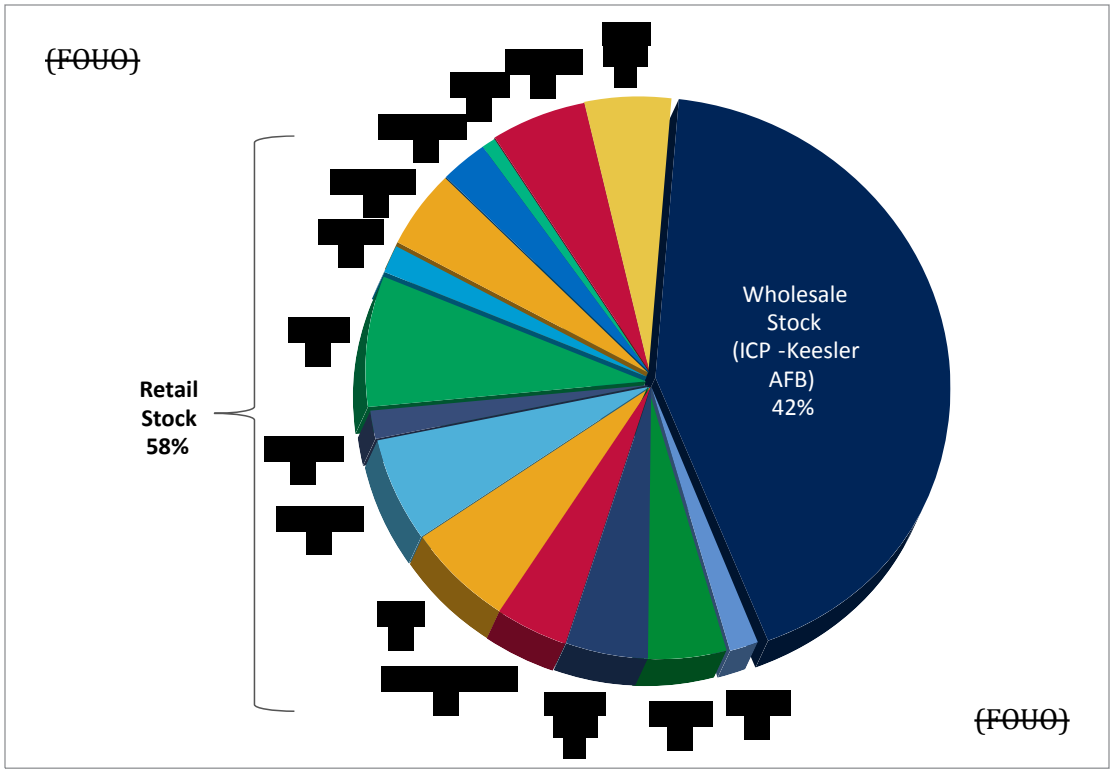
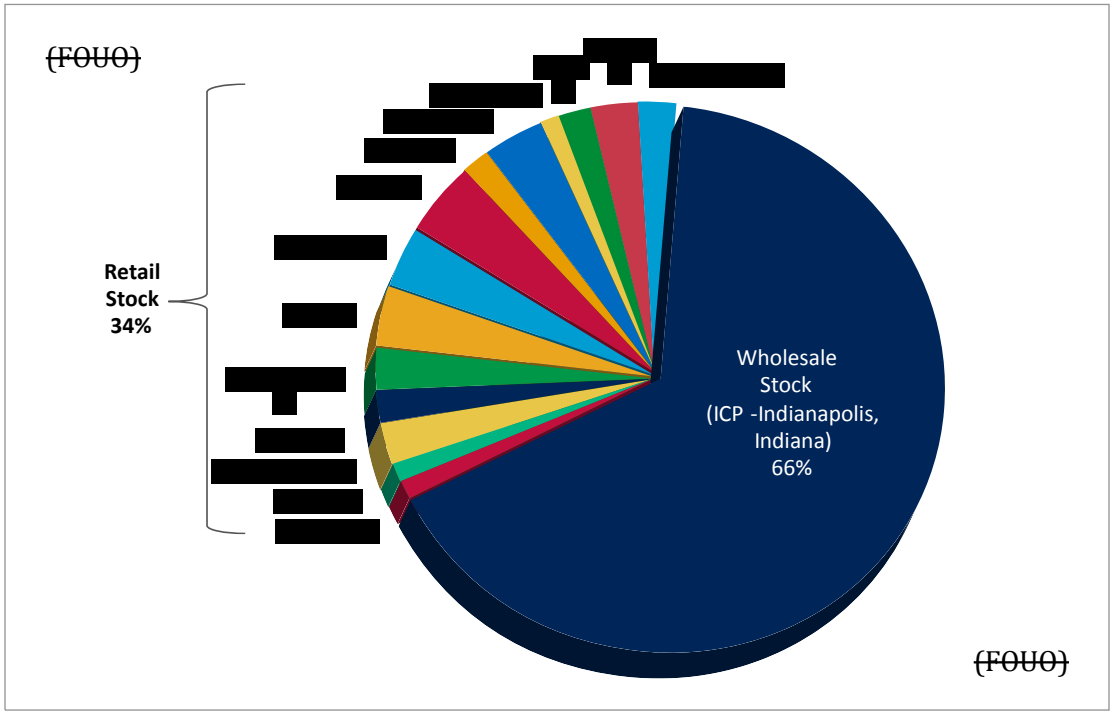


Figure D-2. Rolls-Royce-Sourced Inventory Value Distribution by Percentage



Appendix E

20 Lockheed Martin Parts With Excess Inventory

(FOUO)		Total Inventory On-Hand			IG-Reasonable Inventory		Excess Inventory	
National Stock Number	ADQ	Quantity	Total Value	Years*	Quantity	Total Value	Quantity	Total Value
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]			[redacted]			[redacted]		[redacted] (FOUO)

* Years of Inventory was calculated by dividing the quantity on-hand by the annual demand quantity.

Management Comments

Assistant Secretary of Defense Logistics and Materiel Readiness

Final Report Reference

ASSISTANT SECRETARY OF DEFENSE
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

LOGISTICS AND MATERIEL READINESS

JUL 2 8 2014

MEMORANDUM FOR PROGRAM DIRECTOR FOR ACQUISITION, PARTS, AND INVENTORY, OFFICE OF THE INSPECTOR GENERAL

THROUGH: DIRECTOR, ACQUISITION RESOURCES AND ANALYSIS 7/29/14

SUBJECT: Response to DoD IG Draft Report on Excess Inventory Acquired on Performance-Based Logistics Contracts to Sustain the Air Force's C-130J Aircraft (Project No. D2013-D000CH-0157.000)

As requested, I am providing responses to the general content and recommendations contained in the subject report.

Recommendation 1.b.: Direct the Chief, Tactical Airlift Division and the contracting officer to include a clause in the C-130J performance-based logistics contracts that requires Lockheed Martin and Rolls-Royce to develop and implement a comprehensive inventory management plan that complies with DoD Manual 4140.01, once revised, and DoD comprehensive inventory management improvement plan by addressing over forecasting, total asset visibility, excess inventory, approved acquisition objectives, economic retention stock, contingency retention stocks, and potential reuse stock.

Revised

Response:
Comment – The inventory management plan identified conflicts with recommendation 3.b. The revision to DoD Manual 4140.01 will require contractors managing Government inventory under Sustainment Contracts to submit a written plan for the buying DoD Component's approval. The plan, as referenced in 3.b, will propose actions for the reuse or disposal of Government inventory identified by the contractor as excess to meeting contract requirements.

Recommendation 3: We recommend that the Assistant Secretary of Defense Logistics and Materiel Readiness revise DoD Manual 4140.01, Volume 6, to require contractors managing Government inventory under performance-based logistics contracts to:

a. Report, on a biannual basis, the following to the buying DoD Component: inventory requirements that the contractor establishes to achieve the performance required by the contract; existing Government inventory that the contractor manages against those requirements; and existing Government inventory that the contractor holds in excess of those requirements.

b. Submit a written plan for the buying DoD Component's approval that proposes actions for reuse or disposal of excess Government inventory under contractor management.

Assistant Secretary of Defense Logistics and Materiel Readiness (cont'd)

Response:
The Department concurs with the revision of DoD Manual 4140.01, Volume 6, to address management of Government inventory by contractors; however, the recommendation should be inclusive of all types of Sustainment Contracts not just Performance Based arrangements.

The Department concurs with the intent of Recommendation 3.a; the Assistant Secretary of Defense for Logistics and Materiel Readiness (ASD (L&MR)) will revise DoD Manual 4140.01, Volume 6, by 4th Quarter FY2015, requiring contractors managing Government inventory under Sustainment Contracts to report, on a biannual basis, the following to the buying DoD Component:

- Inventory requirements (e.g. usage rate) that the contractor establishes to achieve the performance required by the contract;
- Existing Government inventory that the contractor manages against those requirements; and
- Existing Government inventory that the contractor holds in excess of those requirements.

The Department concurs with the intent of Recommendation 3.b; however, the wording does not clearly state the contractor is responsible for the identification of excess Government inventory under contract management. The ASD(L&MR) will revise DoD Manual 4140.01, Volume 6, to require contractors managing Government inventory under Sustainment Contracts to submit a written plan for the buying DoD Component's approval that proposes actions for the reuse or disposal of Government inventory identified by the contractor as excess to meeting contract requirements.

Recommendation 4: We recommend the Director, Defense Procurement and Acquisition Policy to establish a contract clause for performance-based logistics contracts that requires contractors in coordination with the buying DoD Component to comply with the revised DoD Manual 4140.01, Volume 6, in recommendations 3.

Response:
The Department concurs to establish a contract clause requiring contractors in coordination with the buying DoD Component to comply with the revised DoD Manual 4140.01, Volume 6; however, the contract clause should be applicable to all Sustainment Contracts per the rationale provided with Recommendation 3. The Director, Defense Procurement and Acquisition Policy will establish and have approved a contract clause no later than 24 months after the revision to DoD Manual 4140.01, Volume 6.

Please contact [redacted] if additional information is required.

Paul D. Peters
Acting

2

Department of the Air Force

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

MEMORANDUM FOR DOD IG

FROM: SAF/FMPA

SUBJECT: Reply to DoDIG Draft Report: Excess Inventory Acquired on Performance- Based Logistics Contracts to Sustain the Air Force's C-130J Aircraft (Project No. D2013-D000CH-0157.000)

The position of SAF/FMP is that we will research and perform ADA investigations when and where it is appropriate. Our priority is to perform good stewardship to include conducting ADA investigations only when necessary.

SAF/FMPA concurs with recommendation 2. We will perform a review of the expenditures and contract documentation to determine bonfide need. In coordination with SAF/GCA, we will determine if a preliminary ADA investigation is warranted. Estimated Completion Date: 30 December 2014. The point of contact is [redacted]

CARR.FREDRICK.E.1024700441

FREDRICK E. CARR
Director, Accounting & Reporting
Financial Operations
(Financial Management)

"Financing the Fight"

Department of the Air Force (cont'd)

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

AUG 14 2014

MEMORANDUM FOR DOD IG

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

SUBJECT: Reply to Draft DoD/IG Report: Excess Inventory Acquired on Performance-Based Logistics Contracts to Sustain the Air Force's C-130J Aircraft.
(Project No. D2013-D000CH-0157.000)

1. I have reviewed the subject report and endorse the comments and responses provided by the Air Force Program Executive Officer for Mobility and AFLCMC/WL.

2. The point of contact for this memorandum is [redacted]

RICHARD W. LOMBARDI
Principal Deputy, Office of the Assistant Secretary
of the Air Force (Acquisition)

Attachment:
PEO Mobility and AFLCMC/WL Comments on Draft Report

Department of the Air Force (cont'd)

MOBILITY DIRECTORATE COMMENTS
DoDIG Draft Report
Excess Inventory Acquired on Performance-Based Logistics Contracts to Sustain the Air Force's C-130J Aircraft
(Project No. D2013-D000CH-0157.000)

Background:

C-130J procurement was initiated in the mid 1990's under a FAR Part 12, *Acquisition of Commercial Items,* with the contract being awarded to Lockheed Martin (LM) Corporation. LM provided platform support for peculiar systems and spares through Interim Contractor Support (ICS) with Rolls-Royce being a key sub-contractor. In 2000, the C-130J Program Office (PO) was directed to follow the Contractor Supported Weapon System (CSWS) concept which "Provides linkage between the acquisition and sustainment phases…." The PO complied with the direction by structuring the Five Year Option Contract (FYOC) with a negotiated "J" peculiar parts list. All peculiar initial spares, including propulsion items, were placed on contract under a price per aircraft arrangement. Under this arrangement, LM determined the range and depth of spares. Spares prices were negotiated and listed on an attachment to the FYOC. The cost of the spares was charged against an initial spares CLIN, often referred to as a debit card transaction approach. The initial spares concept changed from price per aircraft to discrete spares buys in 2006 (Rolls-Royce) and 2012 (LM) with the range and depth recommended by the Contractor, but approved by USAF to meet warfighter requirements.

LM continued to provide sustainment support under ICS until 2006 when sustainment activities transitioned to Robins AFB and two Performance Based Logistics (PBL) contracts were awarded, one to LM for support of C-130J peculiar items and one to Rolls-Royce for propulsion services. Management for all spares purchased during the initial ICS period transitioned to the PBLs, even though they were not purchased using the PBLs. Initial peculiar spares are still purchased from LM and Rolls-Royce using 3010 funding to support the aircraft procurement schedule. The current sustainment strategy requires a service to maintain user-defined performance threshold/metrics, not specifically to buy additional items once initial provisioning is complete.

Inventory is not acquired based on the geographic specific mission requirements. No inventory has been specifically purchased for operations in Iraq and Afghanistan.

General Comments:

The Program Executive Officer for Mobility concurs with comment on two of the DoD IG's sub-findings and associated recommendations, but disagrees with the assertion that the Chief, Tactical Airlift Division and the contracting officer did not efficiently manage spare parts inventory purchased from LM and Rolls-Royce (MissionCare™). Under both contracts, the contractor bears all cost risk for spare parts provided under a Firm Fixed Price (FFP) line item for a service priced on a per flying hour basis. Accordingly, the Contractors are not paid the actual cost for the parts acquired. The FFP arrangement ensures the contractors have a significant financial incentive to control inventory.

Of note, the audit did not take into account the reduction in flying hour costs resulting from the reduced negotiated flying hour rate, which effectively accomplishes the recapitalization of the overages on an annual basis. During annual PBL flying hour rate/provisioning negotiations, the Tactical Airlift Division (TAD) has identified, through active management and using spares modeling, items that needed to be removed from the flying hour calculations due to sufficient quantities being on hand. This annual activity has resulted in $40 million in total savings with $31 million savings in the repair of repairables and $9 million in consumables since 2006.

Department of the Air Force (cont'd)

DoDIG Findings:

1. Inefficient Air Force Management of C-130J Inventory Acquired From Lockheed Martin and Rolls-Royce

> "The Chief, Tactical Airlift Division and the contracting officer did not efficiently manage spare parts inventory valued at [redacted], purchased from Lockheed Martin and Rolls-Royce on performance-based logistics (PBL) contracts for the long-term sustainment of the C-130J aircraft. The procurement was inefficient because the chief and the contracting officer:
>
> - established inadequate performance-based contract requirements that focused on the contractors maintaining a stock availability metric without establishing inventory control metrics for the Air Force-owned inventory;
> - did not track Air Force-specific reliability data for Rolls-Royce spare parts to forecast future inventory needs; and
> - used operations and maintenance (O&M) appropriated funds to satisfy requirements that were potentially not of a bona fide need for the statutory 12-month period of availability."[1]

The Program Executive Officer for Mobility concurs with comment on two of the DoD IG's sub-findings and associated recommendations, but disagrees with the overall assertion that the Chief, Tactical Airlift Division and the contracting officer did not efficiently manage spare parts inventory purchased from LM and Rolls-Royce. The PEO believes that differences in methodology by which the analysis was conducted led to perceived inefficiencies identified during the audit. Table 1 of the audit identifies LM sustainment cost of [redacted] covering the first nine years of the PBL, the audit further states that "Lockheed Martin parts accounted for [redacted] in inventory. The identified difference between money spent under the PBL and total inventory value clearly establishes that the majority of assets were purchased outside the PBL.

The DoD IG utilized current year pricing to approximate the cost of inventory not purchased during the current year, which drove an inflation of the total inventory reported cost of reviewed items. The PO's position is that using the actual price paid during each spares purchase order provides a more accurate representation of program costs. For example, the DoD IG stated the estimated procurement costs of the [redacted] total inventory as [redacted]" However, calculating costs using actual prices paid results in a cost of $295,499 since 2006 for the total inventory. Research also shows that the majority of the [redacted] were purchased prior to 2006 when the fleet was experiencing a high failure rate for this item. Additionally, the [redacted], a mission critical system on the Special Operations fleet of HC and MC-130J, has received four deficiency reports since 2012, accounted for 20 MICAP[2] requisitions leading to 5,646 MICAP hours. In contrast, the DoD IG states [redacted] existed, which is contrary to the fact that a significant number of MICAP hours existed for this item thereby preventing the aircraft from performing its primary mission due to lack of parts availability.

Sub-Finding 1: The Program Executive Officer for Mobility concurs with comment.

[1] DoD Inspector General Project No D2013-D000CH-0157 000, Page 6
[2] MICAP – Mission Capable; Failure of the system/equipment prevents performance of the required mission, AFI 23-101, *Air Force Material Management, 8 Aug 2013,* p 234.

Department of the Air Force (cont'd)

There does appear that an overage of items exist within the C-130J program caused by inaccurate forecasting models utilized during the initial ICS sustainment period prior to PBL award. These overages, purchased as initial spares utilizing 3010 procurement dollars to support delivery of aircraft, have consistently been used to offset contract requirements and cost during annual PBL flying hour rate price negotiations, resulting in the negotiated savings of $40 million since 2006. Under both contracts, the contractor bears all cost risk for spare parts provided under a FFP line item for a service priced on a per flying hour basis. Accordingly, the Contractors are not paid the actual cost for the parts replenished. PBL inventory oversight is not weak, nor was inventory purchased with O & M appropriated funds. Overage items were not purchased, and will not be purchased, until stock levels are within recommended levels based on spares model.

Control of USAF-owned inventory, in regards to maintaining contractor metrics, is accomplished during contract option negotiations and annual provisioning activities. Contractor proposed inventory is reviewed, analyzed against Warfighter defined availability, and adjusted, as required, ensuring total flying hour costs are of best value. This approach ensures inventory is properly managed and customer desired availability requirements are achieved.

The PO process utilized during annual flying hour rate/provisioning negotiations to ensure robust inventory control is described below.

Lockheed Martin
LM provides spares modeling for the USAF C-130J fleet using V-Metric, a commercial off the shelf model equivalent to the Government's D200 Computation Model. The USAF provides approved flying hours in the President's Budget by aircraft variant, number of CONUS and OCONUS bases to be supported, the total number of aircraft at each base by variant, the number of Readiness Spares Package Kits (RSP), projected base activations, and PBL Metric Thresholds for the period. Coupled with the USAF input, LM uses quantity per assembly, current reliability and maintainability field data, 36 month demand history, shipping times for CONUS and OCONUS locations, the number of items by part number that is on order yet to be delivered and current stock levels including Contractor-Inventory Control Point (ICP), Base Level, and RSP Kits.

The V-Metric outputs the minimum mean time between demand and projected demands/usage per year to support the fleet. Contractually delivered to the USAF as part of a formal proposal, the USAF evaluates LM's recommendations. The PO uses the following approach during proposal evaluation: through random sampling of items, the PO calculates the past three year demand history based solely on USAF-calculated data, determines current stock levels, calculates if stock on-hand is sufficient to support warfighter needs over specified period of time, and finally negotiates what items will be included in the flying hour rate for the next option period. If overages/shortages are identified within the current inventory, the PO adjusts accordingly.

Rolls-Royce (RR)
RR provides spares modeling for the USAF C-130J fleet using Servigistics software. Servigistics is a RR proprietary formula to provide the provisioning recommendations to the Government. The USAF provides approved flying hours in the President's Budget by aircraft variant, number of CONUS and OCONUS bases to be supported, the total number of aircraft at each base by variant and projected base activations. Coupled with the USAF input, RR uses the following data points: projected base activations, mean time between repair for items assigned to the organization's parts list, a twelve-month demand history, current stock levels including Contractor-ICP and base level inventory at the time of development. The Servigistics model outputs

Department of the Air Force (cont'd)

the minimum mean time between demand and projected demands/usage per year to support the fleet. Contractually delivered to the USAF as part of a formal proposal, the USAF evaluates RR's recommendations. The PO uses the following approach during proposal evaluation: the PO evaluates and validates all items over the past three year demand history, determines current stock levels, and calculates if stock on-hand is sufficient to support warfighter needs over specified period of time. If overages/shortages are identified within the current inventory, the PO adjusts accordingly.

Additionally, the PO receives propulsion RSP kit requirements from the MAJCOMs. If overages/shortages are identified within the current inventory, the Material Manager adjusts accordingly.

The PO applies the practices described above to determine whether or not the supply chain is in a neutral or excess posture. As a result of this practice, none of the 'excess' assets, identified during the audit, were included in the last two years of negotiations, effectively accomplishing the recapitalization suggested by the DoD IG. This tailored approach to managing peculiar and mission specific parts by storing high-dollar, low-usage items at C-ICP, reducing logistics footprint and inventory cost, has proven to be of best value to the Government over the past eight years.

It is the PO's position that the PBL contracts are in compliance with both past policy and guidance extant at contract award and current DoD policy and guidance through establishing stock positioning goals, as determined with significant input from customers, to minimize total costs. The Contractor provides recommended levels of inventory for base and ICP levels. Once reviewed and agreed upon by both parties, these levels officially become the adjusted stock levels of record.

Sub-Finding 2: The Program Executive Officer for Mobility concurs with comment.

RR uses a commercial provisioning algorithm called Servigistics to recommend spares level inventory to their customers. This is based in part by using Mean Time Between Repair (MTBR) data, which is calculated across all AE 2100D3 customer fleets, for the greatest fidelity and accuracy. The PO understands that mission profiles vary between customers, so future provisioning models will specifically examine USAF C-130J reliability data to forecast future C-130J propulsion inventory.

Sub-Finding 3: The Program Executive Officer for Mobility does not concur.

The PBL contracts are funded with O&M funds to procure severable services in the form of MissionCare™ and Flying Hour Programs, and not simply to procure spare parts. A bona fide need for the service provided existed during the period of availability of funding, and any required replenishment of spares is accomplished by the contractor within the parameters of the service provided. In response, the PO disagrees with this finding.

DoDIG Recommendations:

1. *The Program Executive Officer to:*

   a. *Direct the Chief, Tactical Airlift Division to:*

      1. *Establish and monitor C-130J-unique, performance-based logistics inventory control metrics on the performance-based logistics contracts with Lockheed Martin and Rolls-Royce.*

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Department of the Air Force (cont'd)

Program Executive Officer for Mobility non-concurs:
The PO non-concurs with the establishment of a specific inventory control metric based upon the following rationale. Establishing an inventory control metric goes against one of the basic tenets of a PBL contract, which is to share the risk between the contractor and the Government. The Air Force does not take possession/ownership of a consumable part until it is issued to the field, therefore, the use of an inventory control metric is not required. A Government-defined inventory control metric shifts the risk from the contractor, who currently forecasts demand and builds the appropriate inventory through a FFP relationship, to the Government. Because robust inventory control measures are already in place, C-130J-unique inventory control metrics are not appropriate at this point in time. Control of USAF-owned inventory, in regards to maintaining contractor metrics, is accomplished during contract option negotiations and annual provisioning activities. Contractor-proposed inventory is reviewed, analyzed against Warfighter-defined availability, and adjusted, as required, ensuring total flying hour costs are of best value to the USAF and the taxpayer. Any identified or perceived excess is retained and factored in for the following year's requirements. This approach ensures inventory is properly managed and customer-defined availability requirements are achieved. These established practices are in compliance with the policy/guidance that was in effect at contract award. It is the PO's position that the program is in compliance with current policy/guidance referenced by the DoD IG in the subject audit. The PO will ensure and maintain compliance with policy guidance for future PBL contract awards.

2. *Perform a thorough review of all C-130J-unique inventory to:*

i. Establish a reasonable inventory objective for noncommercial spare parts purchased from Lockheed Martin and reduce future performance-based logistics contract costs by the value of excess on-hand inventory that exceeds the requirement.

Program Executive Officer for Mobility concurs with comment:
The PO concurs with the intent of the DoD IG's recommendation and already has established robust inventory control measures/processes in place. Control of USAF-owned inventory is accomplished during contract option negotiations and annual provisioning activities. Contractor-proposed inventory is analyzed against Warfighter-defined availability standards/goals and adjusted/lowered for items of sufficient quantity, thus ensuring total flying hour costs are reduced. Any identified or perceived excess is retained and factored in for the following year's requirements. This approach ensures inventory is properly managed and Warfighter-desired availability requirements are achieved. Through these practices, a reasonable inventory objective has been set forth for the growing C-130J fleet, and no corrective action is required.

ii. Establish a reasonable inventory objective for commercial spare parts purchased from Rolls-Royce and reduce future performance-based logistics contract costs by the value of excess on-hand inventory that exceeds the requirement.

Program Executive Officer for Mobility concurs with comment:
The PO concurs with the intent of the DoD IG's recommendation and already has established robust inventory control measures/processes in place. Inventory objectives are based on current operational need at the point in time the provisioning model is executed. Some elements of the PBL relationship, such as requiring the Contractor to provide continuous improvement, could contribute an excess by building in reliability. Spares inventory levels are based on failure data, lead time, flying hours, future growth, demand forecast and calculated/adjusted annually. Any identified or perceived excess is retained and factored in for the following year's requirements. Through these practices, a reasonable

Department of the Air Force (cont'd)

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inventory objective has been set forth for the growing C-130J fleet, and no corrective action is required.

3. *Track, record, and report Air Force C-130J failure data to Rolls-Royce.*

Program Executive Officer for Mobility concurs with comment:
The PO concurs with the intent of the DoD IG's recommendation. Tracking, recording, and reporting of USAF-specific C-130J failure data is already accomplished by Rolls-Royce as part of the service provided under the PBL contract. Therefore, no corrective action is required.

4. *Request Rolls-Royce to include the Air Force-specific failure data into its forecast model on an annual basis to improve the accuracy of demand forecast on the performance-based logistics contract for the C-130J engine and propulsion system spare parts.*

Program Executive Officer for Mobility concurs:
The PO concurs with the DoD IG's recommendation. On 1 August 2014, the PO received the initial FY15 provisioning information based upon AE2100D3 fleet-wide Mean Time Between Repair (MTBR) data and USAF C-130J only usage data. USAF C-130J only data will be analyzed to support initial provisioning model for FY15 inventory requirements. Estimated completion date for analysis is 30 September 2014. Due to the short timeline, the Rolls-Royce model, Servigistics, could not be altered to filter for just the USAF C-130J only MTBR data. For the FY16 provisioning, the PO will direct Rolls-Royce to alter the Servigistics model to provide USAF C-130J only MTBR and usage data alongside the AE2100D3 fleet-wide MTBR and usage data. This action will likely drive additional costs for the US Governmnent. Estimated completion date is 1 August 2015.

5. *Review the current C-130J-unique inventories for excess and obsolete spare parts and initiate disposal actions of reuse options such as contractor buyback for application on Navy, Coast Guard, foreign military or commercial platforms.*

Program Executive Officer for Mobility concurs with comment:
The PO concurs with the DoD IG's recommendation with respect to ensuring obsolete parts are not maintained within the inventory. On 14 July 2014, the PO tasked LM via LTS Program Management Tasking 053 to analyze current global inventory to identify potential obsolete parts. Estimated completion date is 12 September 2014. On 1 August 2014, the PO directed Rolls-Royce to perform a comprehensive inventory of all items on hand and identify any obsolete parts that are no longer part of the C-130J configuration. Estimated completion date is 12 September 2014. If obsolete parts are found, the PO will ensure the parts are disposed or reused in accordance with the DoD IG's recommendation. With respect to the DoD IG's recommendation concerning excess parts, the PO concurs with the intent, but disposing of excess parts when the C-130J fleet is growing is premature. C-130J aircraft production is currently scheduled through FY22, so an accurate demand forecast regarding excess parts will likely not be available until the FY20 timeframe. This forecast will be used at that time to identify any potential excess inventory. With respect to re-use and redistribution of parts, the program has processes in place in the form of established primary and secondary inventory control point relationships with Navy and Coast Guard users of the C-130J in the event excess items are available for distribution.

b. *Direct the Chief, Tactical Airlift Division and the contracting officer to include a clause in the C-130J performance-based logistics contracts that requires Lockheed Martin and Rolls-Royce to develop and implement a comprehensive inventory management plan that complies with DoD Manual 4140.01, once revised, and DoD comprehensive inventory management improvement plan by addressing over forecasting, total asset visibility, excess inventory,*

Revised

Department of the Air Force (cont'd)

Final Report Reference

approved acquisition objectives, economic retention stock, contingency retention stock, and potential reuse stock.

Program Executive Officer for Mobility concurs with comment:
The PO believes PBL contractual deliverables, such as the LM Supply Support Plan (SSP) for C-130J Hercules, including EC, WC, HC and MC Variants, Peculiar and Mission Specific Item Support, Version 8.0, dated July 2013, and the SSP for Long-Term Sustainment of the C-130J Propulsion System, dated September 2011, comply with requirements from DoD Manual 4140.01, *the DoD Comprehensive Inventory Management Improvement Plan guidance,* dated October 2010, and SEC. 328., *Improvement of Inventory Management Practices of the 2010 National Defense Authorization Act.* Once DoD Manual 4140.01 is revised by the DoD, as recommended by the DoD IG, the PO will ensure, through contract modifications, that LM and Rolls-Royce revise the SSP as guidance requires.

2. We recommend the Assistant Secretary of the Air Force (Financial Management and Comptroller) perform a preliminary review of operations and maintenance expenditures made on both the LM and Rolls-Royce contracts for C-130 unique spare parts to determine if there was a bona fide need during the one-year appropriation period of availability and whether any potential Antideficiency Act violations occurred.

Proposed SAF/FM Response detailing non-concurrence:
The PBL contracts are funded with Operations and Maintenance funds to procure severable services in the form of MissionCare™ and Flying Hour Programs. Any required replenishment spares are accomplished by the contractor within the parameters on the service provided. In response, the contracting officer disagrees with this finding based on the following rationale:
The contracts reviewed are for services to sustain the C-130J aircraft and propulsion system. Both contracts include direct monetary incentives tied to the contractor's performance as measured by system availability. The Performance Work Statement (PWS) for each contract describes the requirement in terms of various activities such as program management, materiel management, engineering services, and sustaining logistics. The basic premise behind each of the contracts is that the government pays the contractor for a specified target level of system availability. This availability is measured as a percent value or the number of hours in an operational period, and the payment is a firm fixed price based on usage. The contractor assumes the business risks and incurs whatever costs are necessary to deliver the specified performance outcome. This includes the risks and costs associated with ensuring an adequate inventory of spare parts. One such risk is the risk of purchasing more parts than are needed. In these contracts, the contractor bears this risk.

In contrast to the Operations and Maintenance (O&M) funded task orders identified in Tables 1 and 2 of the report, the contracts do allow for direct ordering of spare parts. Delivery orders have been awarded, under both contracts, which require the contractor to deliver specific items as determined by the government, in quantities specified by the government, at a time specified by the government. In exceptional cases such as MICAPs, delivery orders are funded with O&M funds. Standalone delivery orders for routine spares requirements are funded with procurement funds. This division in the funding of spares under the contract is consistent with the funding guidance in AFI 65-601, Vol.1 (2012):

"4.21.3.1. If the contract is written to provide strictly a maintenance service (time and effort), charge the cost to an operating account, for example, O&M Air Force (except for DT&E or IOT&E). Contracts could require the contractor to provide all spares, repair parts, labor, and test equipment.

Official comments from the Assistant Secretary of the Air Force (Financial Management and Comptroller) are on page 51.

Department of the Air Force (cont'd)

4.21.3.2. If the contract calls for the government to purchase and furnish the spares, repair parts, or equipment, including test equipment, then you may need to use more than one appropriation, BPAC, and EEIC."

Each of the task orders identified in Tables 1 and 2 of the audit report includes O&M-funded line items under which the contractor is paid a firm fixed-price amount for each hour flown by USAF C-130J aircraft during the applicable period of performance. Specifically, the line items are Contract Line Item Numbers (CLINs) X003, Consumable Replenishment Spares, *and X010,* Repair of Reparables, *in the Lockheed Martin contract, and X002,* Power by the Hour, *in the Rolls-Royce contract. These line items are the means by which the government compensates the contractor for their effort to maintain an overall inventory of spare parts, in a manner that satisfies specific performance thresholds. Under these line items, the contractor must allocate resources, apply expertise, and exercise judgment concerning what specific spare parts to buy, what quantity to buy, and when to buy them.*

Federal Acquisition Regulation (FAR) 37.101 provides the following definition for a service contract: "a contract that directly engages the time and effort of a contractor whose primary purpose is to perform an identifiable task rather than to furnish an end item of supply." In the case of the C-130J sustainment contracts, the purpose of the O&M funded flight hour CLINs is for performance of the task of continuous replenishment of the spare parts inventory for an one-year period of performance. These orders meet the FAR definition of a service contract.

As the government derives benefit from the contractor's performance each time a spare part is used throughout the period of performance, the task orders are further classified as orders for severable services. The period of performance for these orders starts on 1 February and ends 31 January of the following calendar year, so it crosses fiscal years. FAR 37.106(b) states "The head of an executive agency, except NASA, may enter into a contract, exercise an option, or place an order under a contract for severable services for a period that begins in one fiscal year and ends in the next fiscal year if the period of the contract awarded, option exercised, or order placed does not exceed one year (10 U.S.C. 2410a and 41 U.S.C. 3902). Funds made available for a fiscal year may be obligated for the total amount of an action entered into under this authority." Based on the above facts, O&M funds were used appropriately to acquire severable services.

There is no language in either contract under which the government obtains title to spare parts purchased under the flight hour line items prior to the parts being installed or otherwise used by the government. Also, there is no provision in either contract whereby the government obtains title to parts purchased under the flight hour line items that remain unused at completion of the contract.

In summary, the task orders identified in the report used O&M funds to pay the contractor for their time and effort to replenish the parts inventory so that aircraft parts are available when and where they are needed. There is no evidence that any orders issued under the contracts directed a purchase of excess spare parts that would represent an acquisition that was not a bona fide need of the appropriation period for the funds being used.

Summary:

The initial acquisition strategy for the C-130J platform relied heavily upon best commercial practices and procedures with reduced oversight from the US Government. When the acquisition and sustainment was converted to a more government controlled program, all existing and future spares became government furnished property managed by the PBLs with a marked increase in oversight from the US Government. As a result of the change in sustainment concept, the PO diligently monitors and adjusts spare parts inventory during annual flying hour/provisioning and contract pricing negotiations to keep pace with new aircraft procurement and deliveries, new base activations, and ultimately ever changing Warfighter requirements. The established business processes and practices complied with guidance in effect at the time of contract award

Department of the Air Force (cont'd)

and are compliant with current policy and guidance in existence today. Should policy and guidance change, the PO will analyze those changes and incorporate them into the contract(s) at the first opportunity. The Program Executive Officer for Mobility concurs with comment on two of the DoD IG's sub-findings and associated recommendations, but disagrees with the assertion that the Chief, Tactical Airlift Division and the contracting officer did not efficiently manage spare parts inventory purchased from LM and Rolls-Royce (MissionCare™).

Acronyms and Abbreviations

ADA	Antideficiency Act
AFLCMC	Air Force Life Cycle Management Center
ASD(L&MR)	Assistant Secretary of Defense Logistics and Materiel Readiness
DFARS PGI	Defense Federal Acquisition Regulation Supplement, Procedures, Guidance, and Information
DoDM	DoD Manual
EDA	Electronic Document Access
ICP	Inventory Control Point
MICAP	Mission Capability
NSN	National Stock Number
O&M	Operations and Maintenance
PBL	Performance-Based Logistics
PBTH	Power-by-the-Hour
PEO	Program Executive Officer

Whistleblower Protection
U.S. Department of Defense

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For more information about DoD IG reports or activities, please contact us:

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