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United States Government Accountability Office
Washington, DC 20548

February 11, 2011

The Honorable Kay Bailey Hutchison
United States Senate

Subject: *Depot Maintenance: Air Force Is Assessing Engine Maintenance Options for Work Currently Performed at Kelly Aviation Center*

Dear Senator Hutchison:

This report responds to questions that you raised about Air Force engine maintenance and repair work currently performed at Kelly Aviation Center (KAC) and the potential transfer of that work to another location. In 1999, Oklahoma City Air Logistics Center (OC-ALC) awarded a contract to KAC to perform work, including depot-level maintenance, repair, and overhaul on TF39 engines, which are typically used for C-5 Galaxy aircraft; T56 engines, which are typically used for C-130 aircraft; and fuel accessories on these engines. The Air Force estimates the total expenditure under the contract for this work to be $3.7 billion from February 16, 1999, through December 1, 2010. The contract is not to exceed 15 years (the contract had an initial 7-year ordering period that could be extended to 15 years or reduced to 5 years based on performance), and will expire not later than February 15, 2014. The Air Force will need to determine how to conduct the engine maintenance work after the term of the contract ends.

You requested that we review the potential transfer of the engine maintenance and repair workload from KAC. Our objectives were to determine (1) the extent to which the Air Force has identified the costs and benefits of possibly moving engine maintenance for selected aircraft from KAC and (2) the steps the Air Force has taken and plans to take to mitigate any potential aircraft readiness risks that might occur if the work is moved.

To conduct this work, we reviewed related laws, policies, and other guidance for selecting maintenance depot sources of repair, conducting cost-benefit analyses, and mitigating risk. We also reviewed documents (including the current KAC contract, workload-related information, and other memorandums) and identified the factors (including depot workload, maintenance facility capacity, costs, and benefits) to be considered and the processes to be used in determining best value to the government in selecting the depot-level source of repair. We compared depot-level source-of-repair and cost-benefit analysis criteria to the Air Force's procedures and plans for determining the source of repair. In addition, we reviewed the documents and information on four examples where the Air Force has experience mitigating risk when depot-level maintenance work has been transferred from or performed at a single site. We compared risk mitigation analysis criteria to the Air Force's efforts to assess risk associated with

the possible options resulting from the business case analyses. For both objectives, we discussed issues with officials from the Department of Defense (DOD), Air Force Headquarters, the Air Force Materiel Command, OC-ALC, the Defense Contract Management Agency, and KAC.

We conducted this performance audit from May 2010 through February 2011 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.

In summary, we found that the Air Force is assessing various options (DOD depot only, contractor only, or a combination of the two) for performing the engine repair after the term of the existing contract ends, and is conducting separate cost-benefit analyses for the TF39 and T56 engine maintenance work. Under Air Force guidance for depot-level source-of-repair selection, cost is to be considered, although a formal costing effort is not always necessary. The Air Force has decided to conduct a business case analysis to determine how to best accomplish the long-term, depot-level maintenance for these engines. Air Force officials estimate that the source-of-repair decision will be made by January 2012, but if this decision designates some or all of the work to be competitively sourced, the final decision on the source of repair could be later because of steps in the competitive bidding process. These steps typically include soliciting proposals for the work, receiving and evaluating proposals from potential providers of the work, and awarding the contract.

Regarding any potential readiness risks that may result from transferring the engine work, we found that the Air Force recognizes the importance of risk mitigation planning. However, the Air Force has not developed specific risk mitigation plans for the TF39 or T56 engines because it is still assessing how the work will be performed after the term of the contract ends. DOD guidance identifies risk assessment as a factor to be considered when assigning maintenance work, and Air Force guidance requires that a business case analysis include sensitivity and risk analyses. If a decision were made to transfer the work, Air Force officials said that the service could apply risk mitigation strategies similar to those it has successfully used in the past. These strategies have included increasing its shelf stock of component parts and identifying in advance other depot and commercial facilities capable of performing specific workloads.

We are not making any recommendations in this report.

Enclosure I contains briefing slides that provide additional details regarding our findings. After reviewing a draft of this report, DOD officials said that the department had no comments.

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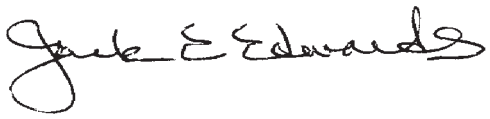
We are sending copies of this report to the appropriate congressional committees; the Secretary of Defense; the Deputy Secretary of Defense; the Under Secretary of Defense (Acquisition, Technology and Logistics); and the Secretary of the Air Force. The report also is available at no charge on the GAO Web site at http://www.gao.gov.

Should you or your staff have questions concerning this report, please contact me at (202) 512-8246 or edwardsj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report were Carleen Bennett, Assistant Director; Lee Cooper; Jennifer Madison; Charles Perdue; and Michael Willems.

Sincerely yours,



Jack E. Edwards
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Enclosure - 1

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Depot Maintenance: Air Force Is Assessing Engine Maintenance Options for Work Currently Performed at Kelly Aviation Center

Briefing for the Honorable Kay Bailey Hutchison
United States Senate
February 11, 2011

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Introduction

- As a result of a 1995 Base Realignment and Closure decision, the San Antonio Air Logistics Center on Kelly Air Force Base, Texas, including the maintenance depot, was closed in 2001.
  - To mitigate the impact of the closing of an Air Force depot on the local communities and employees, the administration announced its intention to maintain employment levels by privatizing the maintenance depot's workload in place.
  - Much of the work that had been performed by the San Antonio Air Logistics Center was to be performed by a private contractor at the same location.
- The Oklahoma City Air Logistics Center (OC-ALC) entered into a public-private partnership[1] with Lockheed Martin at Kelly Aviation Center (KAC), formerly San Antonio Air Logistics Center, to conduct work previously performed by a Department of Defense (DOD) maintenance depot.

[1] DOD Instruction 4151.21, *Public-Private Partnerships for Depot-Level Maintenance* (Apr. 25, 2007), defines public-private partnerships for depot-level maintenance as cooperative arrangements between the Department of Defense (DOD) and one or more private-sector entities to perform DOD or defense-related work, utilize DOD depot facilities and equipment, or both.

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Introduction

- In 1999, OC-ALC awarded a contract under a previously established public-private partnership with KAC to perform work, including depot maintenance, repair, and overhaul on
  - TF39 engines, which are typically used in the C-5 Galaxy (models A to C) aircraft;
  - T56 engines, which are typically used in the C-130 (models E and H) aircraft; and
  - fuel accessories on these engines.
- The Air Force estimates the total expenditure under the contract for this work to be $3.7 billion from February 16, 1999, through December 1, 2010.
- The contract is not to exceed 15 years (the contract had an initial 7-year ordering period that could be extended to 15 years or reduced to 5 years based on performance), and will expire not later than February 15, 2014.
- The Air Force will need to determine how to conduct the engine maintenance work after the term of the contract ends.

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Objectives

The former Ranking Member of the Subcommittee on Military Construction, Veterans Affairs, and Related Agencies, Senate Committee on Appropriations, requested that we analyze the potential transfer of engine maintenance and repair workload from KAC.

Our objectives were to determine the following:

(1) The extent to which the Air Force has identified the costs and benefits of possibly moving engine maintenance for selected aircraft from KAC.

(2) The steps the Air Force has taken and plans to take to mitigate any potential aircraft readiness risks that might occur if the work is moved.

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Scope and Methodology

- For both objectives, we:
  - Reviewed related laws, policies, and other guidance available for selecting maintenance depot sources of repair, conducting cost-benefit analyses, and mitigating risk.
  - Discussed issues with officials from DOD, Air Force Headquarters, the Air Force Materiel Command, OC-ALC, the Defense Contract Management Agency, and KAC.
- For objective 1, we:
  - Reviewed documents (including the current KAC contract, workload-related information, and other memorandums).
  - Identified the factors (including depot workload, maintenance facility capacity, costs, and benefits) to be considered and the processes to be used in determining best value to the government in selecting depot-level source of repair.
  - Compared depot-level source-of-repair and cost-benefit analysis criteria to the Air Force's procedures and plans for determining the source of repair.

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Scope and Methodology

- For objective 2, we:
  - Reviewed the previously cited documents and information on four examples where the Air Force has experience mitigating risk when depot-level maintenance work has been transferred from or performed at a single site.
  - Compared risk mitigation analysis criteria to the Air Force's efforts to assess risk associated with the possible options resulting from the business case analyses.
- We conducted this performance audit from May 2010 through February 2011 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.

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Summary of Findings

Objective 1: The Air Force is assessing various options (DOD depot only, contractor only, or a combination of the two) for performing the engine repair after the term of the existing contract ends, and is conducting separate cost-benefit analyses for the TF39 and T56 engine maintenance work. Under Air Force guidance for depot-level source-of-repair selection, cost is to be considered, although a formal costing effort is not always necessary. The Air Force has decided to conduct a business case analysis to determine how to best accomplish the long-term, depot-level maintenance for these engines. Air Force officials estimate that the source-of-repair decision will be made by January 2012, but if this decision designates some or all of the work to be competitively sourced, the final decision on the source of repair could be later because of steps in the competitive bidding process. These steps typically include soliciting proposals for the work, receiving and evaluating proposals from potential providers of the work, and awarding the contract.

Objective 2: The Air Force recognizes the importance of risk mitigation planning, but has not developed specific risk mitigation plans for the TF39 or T56 engines because it is still assessing how the work will be performed after the term of the contract ends. DOD guidance identifies risk assessment as a factor to be considered when assigning maintenance work, and Air Force guidance requires that a business case analysis include sensitivity and risk analyses. Air Force officials said that if a decision were made to transfer the work, the Air Force could apply risk mitigation strategies similar to those it has successfully used in the past. These strategies have included increasing shelf stock of component parts and identifying in advance other depot and commercial facilities capable of performing specific workloads.

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Objective 1: Cost-Benefit Analyses

The Air Force Is Assessing Depot-Level Source-of-Repair Options for the TF39 and T56 Engines

- With up to 4 years left in the current contract, the Air Force began the current process to select the depot-level source of repair. The process includes steps to identify and assess options for conducting depot maintenance on the TF39 and T56 engines once the current contract has been completed.
- DOD Instruction 4151.20 prescribes procedures to identify required core capabilities for depot maintenance and the associated workloads needed to sustain those capabilities.
  - Core refers to a depot maintenance capability that is government owned and operated (including government personnel and government-owned and government-operated equipment and facilities maintained by DOD) to ensure a ready and controlled source of technical competence and resources necessary for effective and timely response to a mobilization, national defense contingencies, or other emergency requirements.[2]
  - Non-core workload is workload that is not needed to support core capability requirements and therefore can be performed by either the public or private sector.
- The Air Force took the following actions during the 2009-2010 time frame:
  - Designated TF39 and T56 engine maintenance as non-core work and tasked OC-ALC to complete a cost-benefit analysis to determine the best source to perform the maintenance when the term of the existing contract ends not later than February 2014.
  - Determined that the repair work could be done at a DOD depot, by a contractor, or by a combination of the two.
  - Began gathering data on costs, workloads, benefits, and other source-of-repair information for TF39 and T56 engine maintenance.

[2] DOD Instruction 4151.20, *Depot Maintenance Core Capabilities Determination Process* (Jan. 5, 2007).

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Objective 1: Cost-Benefit Analyses

Air Force's Guidance for Depot-Level Source-of-Repair Selection Requires Analyses for Determining Best Value to the Government

- Air Force criteria allow commands flexibility in conducting analyses for determining the best value for the government.
  - Under Air Force guidance[3] for depot-level source-of-repair selection, cost is to be considered, although a formal costing effort is not always necessary. The program manager is to determine the scope and methodology.
  - Other Air Force guidance[4] describes the procedures for conducting a business case analysis, including that the analysis
    - is a decision support document that identifies alternatives and presents business, economic, risk, and technical arguments for selection and implementation of a given alternative to achieve stated objectives;
    - includes a problem statement, cost-benefit analysis, and sensitivity and risk analyses, among other items, to make a recommendation for maintenance to be performed by a DOD depot, a contractor, or some combination of the two (the cost-benefit analysis assigns quantitative values to each alternative); and
    - has an ultimate objective of providing an analysis that effectively supports a timely decision-making process.

- In a December 2009 memo, OC-ALC informed the Air Force Materiel Command that because of the sensitivities of these maintenance efforts, it would conduct a business case analysis to determine how to best accomplish the long-term, depot-level maintenance for these engines.

[3] Air Force Instruction 63-101, *Acquisition: Acquisition and Sustainment Life Cycle Management* (Apr. 17, 2009, Incorporating Through Change 3, Oct. 26, 2010).
[4] Air Force Manual 65-510, *Financial Management: Business Case Analysis Procedures*, September 22, 2008, identifies a business case analysis as considerably broader in scope than a cost-benefit analysis.

Objective 1: Cost-Benefit Analyses

The Air Force Estimate for a Source-of-Repair Decision for the TF39 and T56 Engines Is January 2012 or Later

- Once the Air Force's analyses are complete, the results will be forwarded to an interservice board for a final decision on the source of work (depot, contractor, or a combination).
  - The Air Force estimates that it will provide a recommendation to the board by mid-2011.
  - The Air Force said the board could announce its source-of-repair decision for the TF39 and T56 engines by January 2012.
- If the board determines that the maintenance efforts are to be satisfied using competitive sourcing, a decision on the specific provider of work for each engine could be later because of steps in the competitive bidding process. These steps typically include soliciting proposals for the work, receiving and evaluating proposals from potential providers of the work, and awarding the contract.

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Objective 2: Analyses on Risks to Readiness

Air Force Has Not Assessed Readiness Risks Because Its Cost-Benefit Analyses Are Ongoing

- The Air Force recognizes the importance of risk mitigation planning, but it has not developed specific risk mitigation plans for the TF39 or T56 engines because it has not determined how the workload will be performed after the term of the contract ends. The Air Force may follow risk analysis practices that it has successfully used in the past.
  - An Air Force Headquarters official told us that the 1995 Base Realignment and Closure decisions resulted in accepting the risk of conducting depot maintenance at single locations for engine and aircraft workloads at KAC, OC-ALC, and other contractor and government locations.
  - DOD guidance[5] requires that source-of-repair assignments for depot-level maintenance workloads shall consider requirements for maintenance of identical or similar DOD materiel and combine or consolidate similar requirements for maintenance work whenever feasible, which Air Force officials said supports single-site engine maintenance work. This guidance also requires that the services apply a risk mitigation analysis when choosing a source of repair for non-core depot-level maintenance workloads.
  - The Air Force has requirements to apply risk analysis. Air Force Manual 65-510[6] requires that a business case analysis include sensitivity and risk analyses and notes that it is important to
    - identify and analyze risks to determine which risks present the greatest threat to the initiative's successful outcome and
    - assess, for each risk,
      - the likelihood of that risk occurring,
      - the potential impact on the project, and
      - an approach to overcome or lessen the negative consequences should the risk occur.

[5] DOD Directive 4151.18 , *Maintenance of Military Materiel* (Mar. 31, 2004).
[6] Air Force Manual 65-510, *Financial Management: Business Case Analysis Procedures* .

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Objective 2: Analyses on Risks to Readiness

The Air Force Has Experience Managing Risk

- The Air Force has experience managing risk when a weapon system's maintenance is conducted at a single site. For example, the Air Force has the current work for the TF39 and T56 engines at a single location--KAC.
- The Air Force also has used other options to mitigate depot-level maintenance risk when transitioning work from one source of repair to another. For example, Air Force officials
  - provided information on an interim maintenance contract to prevent a gap in mission support until a final source-of-repair decision is made for the provider of work and until the new provider builds operational capability and
  - said that in the past the service has increased production of certain component parts to ensure that sufficient quantities are available on inventory shelves, which can help the Air Force to maintain its aircraft readiness rate goals.
- An Air Force Headquarters official said the service also maintains knowledge of depot and commercial sites capable of performing workloads in case a maintenance facility were to be rendered inoperable.

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Agency Comments

We provided a draft of this report to DOD for its review and comment. Department officials indicated that they had no comments.

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