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AUDIT REPORT

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OFFICE OF AUDITS

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NASA MISSION MANAGEMENT AND  
PROGRAM SUPPORT AIRCRAFT A-76 STUDIES

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OFFICE OF INSPECTOR GENERAL

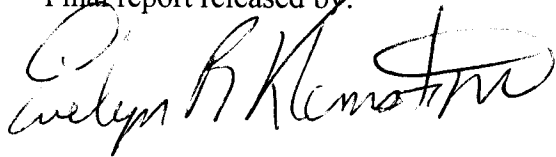
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National Aeronautics and  
Space Administration

Final report released by:



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Assistant Inspector General for Auditing

## Acronyms

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CDA	Conklin and de Decker Associates
FY	Fiscal Year
GAO	Government Accountability Office
MMA	Mission Management Aircraft
NPR	NASA Procedural Requirements
OIG	Office of Inspector General
OMB	Office of Management and Budget
PA&E	Program Analysis and Evaluation
PSA	Program Support Aircraft

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## OVERVIEW

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# NASA MISSION MANAGEMENT AND PROGRAM SUPPORT AIRCRAFT A-76 STUDIES

## The Issue

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The Office of Management and Budget (OMB) Circular No. A-126, "Improving the Management and Use of Government Aircraft," May 22, 1992, requires that Federal agencies periodically review the cost-effectiveness of their aircraft operations in accordance with OMB Circular No. A-76, "Performance of Commercial Activities," revised May 29, 2003.

To comply with OMB guidance, the NASA Aircraft Management Division hired an independent contractor, Conklin and de Decker Associates (CDA), to analyze NASA's continuing need for its aircraft, the cost effectiveness of its aircraft operations, and whether NASA's passenger flight needs could be better served by commercial (private sector) contract. In August 2006, the Aircraft Management Division released the Aviation Services studies (A-76 studies), which reviewed NASA's mission management aircraft (MMA) at Johnson Space Center (Johnson), Kennedy Space Center (Kennedy), and Marshall Space Flight Center (Marshall), and program support aircraft (PSA) at Dryden Flight Research Center (Dryden) and Wallops Flight Facility (Wallops). The A-76 studies concluded that NASA's best source for low-cost aviation services was to continue operation of the three MMA and two PSA with the current Government-owned/operated programs.

We reviewed the A-76 studies to determine whether the conclusions of the studies completed by CDA were reasonable and supported by accurate and reliable data and whether the costs utilized in the studies were correctly calculated and fully justified. (See Appendix A for details of the audit's scope and methodology.)

## Results

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During our audit, we maintained continuous and open communication with NASA's Aircraft Management Division, which took a proactive approach to address the issues we identified concerning the accuracy of the Johnson, Kennedy, and Marshall August 2006 A-76 MMA studies. Specifically, we identified that CDA's use of a NASA requirement that aircraft be available in less than 4 hours and that a 12-passenger aircraft be used for the analyses for the three MMA restricted the options for the private sector provider and also made the private sector provider scenarios cost prohibitive. In addition, support for

Marshall's cost data provided to CDA was not available, and in its data submission, Marshall did not include annual direct costs totaling approximately \$345,180.

After communicating with the Aircraft Management Division about the issues we identified, that Office determined that the August 2006 A-76 studies, which concluded that all three MMA should be retained and operated by the Centers, needed to be revised and that the need for MMA and the use of private sector provider fractional leases<sup>1</sup> should be reevaluated. In January 2007, the Aircraft Management Division reacquired the services of CDA to update the A-76 MMA studies for Johnson, Kennedy, and Marshall, revising the less-than-4-hour immediate response time and the 12-passenger aircraft size requirements. In addition, the Aircraft Management Division determined that the Marshall Air Operations Office should resubmit their cost data to include all costs for Marshall's MMA operations.

CDA completed the revised studies on February 7, 2007. CDA indicated that Johnson and Kennedy should continue operating their respective current Gulfstream aircraft for the near term and Marshall should pursue the use of a private sector provider fractional lease. Specifically, the results for Marshall indicated a fractional lease for mission required flights had the potential to save NASA \$3.5 million over 5 years, or about 23 percent of current costs. Therefore, CDA recommended that Marshall take the appropriate steps to dispose of the aircraft.

The revised Johnson and Kennedy studies showed that costs could be reduced by \$893,000 (7.3 percent of current costs) and \$366,000 (4.6 percent of current costs), respectively, over 5 years by using a private sector provider for all mission required flights. Therefore, CDA also recommended that NASA evaluate the costs and benefits of replacing all three MMA programs with a single program such as a private sector provider. CDA stated "the combined efficiencies of using a single contractor for all three Centers may be sufficient to tip the balance in favor of a consolidated solution."

On March 28, 2007, the Aircraft Management Division, working with the NASA Office of Procurement, issued a request for information for commercial aviation transportation services from private sector providers. The request for information is for planning purposes only. However, NASA will use the responses to evaluate the price and mission effectiveness of commercial transportation services in lieu of operating NASA's own aircraft at any or all three of the MMA Centers.

Requirements for the two PSA studies were different than those for MMA, and the conclusions of the August 2006 PSA studies were reasonable and supported. The analyses concluded that aircraft operations for both PSA should be retained.

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<sup>1</sup> A fractional lease, or alternative on-demand flight service, offers clients programs to give them access to a large fleet of aircraft without the commitment of aircraft ownership.

Because the Aircraft Management Division has already taken action and addressed the issues we identified, this report contains no recommendations.

We issued a draft of this report on April 11, 2007. Because we made no recommendations, management comments were not required. However, management provided a response (see Appendix B), stating that they had no comments on the report and noting that the questions and suggestions made by the audit team during the audit had stimulated discussion and improved the quality of the finished studies.



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## DEVELOPMENTS IN NASA'S MMA POLICY

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Since 1963, NASA has operated a small fleet of Government-owned passenger aircraft to provide on-demand transportation in support of the Agency's missions. NASA calls its fleet, mission management aircraft (MMA). MMA fulfill mission transportation requirements for the International Space Station, Space Shuttle programs, and, potentially, the exploration program as well as other activities that constitute the discharge of NASA's official responsibilities. NASA also operates program support aircraft (PSA) to perform time-critical, mission-related activities in support of science and research missions and to meet pilot proficiency training requirements.

**GAO Review.** In August 2005, the Government Accountability Office (GAO) issued a report criticizing NASA's MMA program and concluded that,

NASA's ownership of aircraft to provide passenger transportation supporting routine business operations is not consistent with OMB policy guidance. OMB's governmentwide guidance directs agencies to acquire and retain only the number and size aircraft needed to meet direct mission requirements.

. . . . .

NASA's implementation of its guidance has resulted in NASA owning aircraft to provide passenger transportation for any purpose related to NASA programs or projects, regardless of whether it could have been as efficiently and effectively carried out using commercial airline services.<sup>2</sup>

At the time of the GAO audit, NASA's MMA policy was stated in Chapter 3, "Mission Management Aircraft Operations," NASA Procedures and Guidelines 7900.3A, "Aircraft Operations Management," dated April 8, 1999. In response to the GAO audit, NASA's former Assistant Administrator for Infrastructure and Administration issued guidance on July 29, 2005, via e-mail, to immediately align NASA's MMA policies with OMB Circular A-126, which established Government-wide policy on mission management flight operations. This was followed in December 2005 by issuance of Chapter 3, "Mission Management Aircraft Flight Operations," NASA Procedural Requirements (NPR) 7900.3A, "Aircraft Operations Management," dated December 1, 2005, that formalized and expanded on the July 2005 guidance. This chapter established policy and procedures for management, use, operation, and control of Government aircraft when used or controlled by NASA to transport passengers or cargo. Currently, NASA's MMA policy is being revised as Chapter 4, "Mission Management Aircraft Operations," NPR 7900.3B, "Aircraft Operations Management."

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<sup>2</sup> Government Accountability Office. "NASA Travel: Passenger Aircraft Services Annually Cost Taxpayers Millions More Than Commercial Airlines" (GAO-05-818, August 2005), page 4.

Overall, NPR 7900.3A, the 2005 revision represents a complete rewrite of the MMA chapter content. The 2005 NPR was developed to more closely align NASA policy regarding MMA flight operations with OMB Circular A-126. The revision, as it stands, significantly strengthens oversight and clarifies guidance for NASA's MMA operations and use of program support aircraft.

**PA&E Study.** In December 2005, NASA's Office of Program Analysis and Evaluation (PA&E) completed a study, "Review of NASA Mission Management Aircraft Requirements," that examined "NASA's MMA requirements to define the Agency's requirements for MMA, to recommend the number and size of assets needed to fulfill those requirements, and to consider alternatives to aircraft ownership." The PA&E team identified and evaluated the current uses and projected future needs of MMA at NASA and documented a number of NASA activities fundamental to the execution of Agency programs that qualify as "mission requirements." The study resulted in recommendations that, if implemented, would bring NASA into compliance with Federal policy. The recommendations were that NASA should: (1) conduct an analysis<sup>3</sup> to determine the most appropriate means of meeting the aircraft requirements; (2) retire one of the Gulfstream IIs (at the time of the study, NASA owned three Gulfstream IIs); (3) confirm with OMB that the Agency's revised MMA policies and requirements, both interim and final, comply fully with OMB policy; and (4) continue use of MMA for official travel when such travel is justified under the guidance established in NASA policy directives and requirements.

**NASA Administrator.** In February 2006, the NASA Administrator accepted the PA&E review team's findings and recommendations. He then directed (1) initiation of a disposal process for Johnson's Gulfstream II, (2) relocation of the Headquarters' Gulfstream III to Johnson, (3) establishment of a continuing process for assessing MMA requirements, and (4) initiation of A-76 studies on the remaining five MMA considering all practical alternatives. However, the Administrator disagreed with the PA&E team's justification of "pilot proficiency training" for MMA ownership. The Administrator stated, "The primary purpose of aircraft used for pilot proficiency is in support of flying research aircraft, which does not involve the transportation of passengers." Therefore, the Administrator directed that the Dryden and Wallops King Air B200 MMA, used primarily for pilot proficiency, be re-designated as PSA. From the draft NPR 7900.3B Chapter 4, Table 1 identifies mission requirements for MMA, which, in our opinion, are valid requirements.

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<sup>3</sup> The Aircraft Management Division chose to meet this recommendation by contracting with an aerospace advisory firm to conduct A-76 studies.

<b>Table 1. Mission Requirements</b>	
<b><u>International Space Station Program</u></b>	
1.	Return of International Space Station crews after landing.
2.	Provide transportation for emergency response to in-space operations problems and unexpected events.
<b><u>Space Shuttle Program</u></b>	
3.	Provide emergency transport capability for Kennedy Shuttle launch/landing Rapid Response Team for each shuttle launch.
4.	Provide transportation capability for initial response to space vehicle post-mishap investigations.
5.	Needed for emergency response to in-space operations and unexpected events (unscheduled and time critical events).
6.	Satisfy requirements of the Astronaut Family Support Plan.
7.	Provide transportation for prime flight crew members to/from launch site during pre-launch countdown and post launch activities.
<b><u>Science Programs</u></b>	
8.	Transport emergency response teams and equipment to flight research mishaps or aircraft grounded off-station due to maintenance problems.
9.	Return hardware and data from the landing site of remotely operated space probes.
10.	Transport equipment to support flight research for unscheduled and time critical events to accommodate tight launch schedules.
11.	Provide contingency fast response capability for launch and search and recovery operations for sounding rockets launched at the Wallops range.
<b><u>Natural Disaster Response</u></b>	
12.	Hurricane and other natural disaster evacuation and response to protect NASA personnel and property.

Currently, NASA owns and operates three MMA to meet mission requirements (one Gulfstream III and two Gulfstream IIs) and two PSA (King Air B200s). Table 2 provides an overview of these aircraft and their locations.

<b>Table 2. NASA's Mission Management and Program Support Aircraft Re-Designated in 2006</b>			
Name	Make/Model	Program	Location
NASA-2	Gulfstream III	MMA	Lyndon B. Johnson Space Center
NASA-3	Gulfstream II	MMA	George C. Marshall Space Flight Center
NASA-4	Gulfstream II	MMA	John F. Kennedy Space Center
NASA-7	King Air B200	PSA	Dryden Flight Research Facility
NASA-8	King Air B200	PSA	Wallops Flight Facility

**A-76 Studies.** In April 2006, as a result of the PA&E study and the NASA Administrator's direction, NASA contracted with Conklin and de Decker (CDA), an

aerospace advisory firm, to conduct five Aviation Services studies, in compliance with OMB Circular A-126. Since the mission requirements for the five aircraft were modified after the PA&E study, new OMB Circular A-76 studies were necessitated in accordance with OMB Circular A-126.

CDA's primary emphasis was to perform a thorough review of all practical alternatives to Government ownership that would satisfy NASA's mission requirements. The statement of work NASA developed for CDA required CDA to use (1) an aircraft that could respond in less than 4 hours, (2) a long-range aircraft that could accommodate up to 12 passengers, (3) the ability to slip launch or landing dates and locations,<sup>4</sup> and (4) aircraft operations financial information provided by the Centers. In August 2006, CDA completed the five Aviation Services studies.

On August 11, 2006, CDA completed three studies for the MMA programs at Johnson, Kennedy, and Marshall. In the studies' results, CDA recommended that (1) Johnson and Kennedy should retain their current Government-owned/operated MMA; and (2) Marshall's MMA, based on financial data alone, would be a candidate for replacement with a private sector alternative, but the savings accounted for less than 10 percent of program costs and, therefore, the aircraft should be retained.

On August 15, 2006, CDA completed two studies for the PSA programs at Dryden and Wallops. The statement of work for the PSA A-76 studies did not include all the requirements of the statement of work for the MMA studies. The PSA statement of work required only that CDA use the financial data provided by Dryden and Wallops that was based on their projected fixed and variable costs. CDA recommended in both PSA A-76 studies that NASA retain the current King Air B200 aircraft as low-cost aviation service providers and also use the aircraft more for cost-justified official travel, not less, due to cost savings over commercial airline use.

**NASA OIG Audit.** The objective of this audit was to determine whether the conclusions of the A-76 studies completed by Conklin and de Decker Associates were reasonable and supported by accurate and reliable data and whether the costs utilized in the studies were correctly calculated and fully justified.

We also reviewed internal controls as they related to the objective. See Appendix A for details on the audit's scope and methodology, our review of internal controls, and prior coverage.

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<sup>4</sup> The ability to slip launch or landing dates and locations was included in the A-76 studies as stand-by days for NASA MMA and as a 24 hours-7 days a week availability requirement for private sector providers. Private sector providers would meet this requirement by pre-positioning aircraft.

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## **FINDING A: NASA'S REQUIREMENTS RESTRICTED STUDY OUTCOMES FOR MMA**

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Two key requirements, specific to the three MMA studies, established by NASA in the statement of work for CDA ultimately affected the study results. Specifically, in assessing NASA-owned versus commercial aircraft, CDA was required to use an aircraft availability response requirement of less than 4 hours and required to use a large 12-passenger, long-range aircraft. As a result, the A-76 studies completed for the MMA in August 2006 supported retaining all three MMA programs. However, in February 2007, the studies were revised for MMA using a minimum 4-hour response time and smaller aircraft. The results of the revised studies concluded that retaining the Johnson and Kennedy MMA programs was cost effective but replacing the Marshall MMA program with a private sector provider with fractional lease would be most cost beneficial.

### **Federal Policies**

OMB Circular No. A-126, "Improving the Management and Use of Government Aircraft," May 22, 1992, requires agencies to periodically review the need for their aircraft and also assess the cost effectiveness of their aircraft operations, in accordance with OMB Circular A-76, "Performance of Commercial Activities," revised May 29, 2003. OMB Circular A-76, Appendix 6, "Aviation Competitions," provides guidance for developing cost comparisons of aircraft or aviation management support services. It states that aviation support services should be reviewed for possible conversion to or from in-house performance.

### **The 2-Hour Immediate Response Requirement Restricted the Competitiveness of a Private Sector Provider**

NASA included, in the CDA contract statement of work, requirements for completing the MMA A-76 studies that ultimately affected the study results. The statement of work required CDA to use a "less than 4 hour" aircraft availability response time. The Aircraft Management Division provided CDA with a baseline for cost comparison purposes using both 2- and 4-hour response times that CDA used when completing the A-76 studies in August 2006. The 2-hour response time was based on language in Marshall's contract for MMA operations. The 4-hour response time was based on program requirements.

NASA could not identify or provide written support for the requirement of less than 4 hours. We contacted NASA's Space Shuttle office and requested written guidelines or

support for the requirement. The Assistant Associate Administrator for Space Shuttle verbally stated that the Space Shuttle and the International Space Station programs required “no less than a 4-hour response time.” However, the Space Shuttle office could not provide us any documentation or policy requirements for either a 2- or 4-hour response. Using the statement of work requirement of less than 4 hours aircraft availability response time restricted the competitiveness of private sector provider cost comparisons.

Private sector providers can make aircraft available to fly on an as-needed basis and on relatively short notice. We found that 4-hours is an industry standard guaranteed by the private sector in fractional leases. Costs associated with fractional leases include

- acquisition fee based on the type of aircraft selected,
- monthly management fees,
- fee for the number of flight hours used, and
- a fuel consumption fee.

Costs are not affected for response times over 4 hours because an aircraft does not need to be pre-positioned to meet response times of 4 hours or more. Additional costs are incurred, however, when aircraft must be pre-positioned for response times of less than 4 hours. Thus, the 2-hour response time made private sector provision of that service cost prohibitive because private sector providers would need to pre-position aircraft in order to meet the short response times, charging NASA for these services.

The 2-hour immediate response requirement in the A-76 studies made it difficult to develop cost-effective alternative scenarios using private sector provider fractional leases that were competitive with aircraft services provided by the MMA program. As a result, the 2-hour immediate response requirement supported retaining all of NASA’s MMA programs.

### **MMA Capacity Requirement Contradicted Previous Study Results and Skewed Cost Comparisons**

The statement of work required CDA to use a 12-passenger capacity aircraft in developing Government-owned versus private sector provider cost comparisons. The aircraft CDA chose for cost comparison, the Challenger 604, is one of the more expensive aircraft to operate because of its size and the cost to procure its services. Its capacity, however, is similar to NASA-owned MMA. Aircraft Management Division officials justified the aircraft size requirement for cost comparison purposes on the basis that it was the size already owned by NASA, even though the larger size is not needed in all situations.

In July 2004, a CDA study, “Mission Management Aircraft Fleet Plan, 2004” evaluated NASA’s MMA fleet to determine its suitability for providing efficient transportation among its facilities and to recommend prudent and cost-benefit alternatives. That study found that NASA’s use of the MMA was well justified. However, NASA could use a smaller aircraft, such as an 8–10 passenger, midsize aircraft, to conduct mission-required flights, as a cost effective alternative. The study described the Gulfstream MMA as

not suitable for NASA MMA mission [because] they are too expensive to operate in fact, no other business jets cost more to operate than the Gulfstream II and Gulfstream III. . . . The key factor is the Gulfstreams are large cabin aircraft designed for long-range international operations. The Gulfstream is simply too much aircraft for NASA’s MMA requirement. The most suitable aircraft for this mission would be the popular midsize (Learjet 45XR, Citation XLS, Sovereign, etc.) to super midsize business jets (Gulfstream 200, etc.) with cabin size and range performance suitable for typical Center-to-Center trips with 5-10 passengers. Large cabin, long-range aircraft are expensive to operate, while small-cabin, light business jets do not have enough range to meet the requirement.

Limiting the cost comparison to one, 12-passenger, long-range aircraft precluded CDA’s ability to consider potentially more viable options. CDA did not provide cost data for an 8-10 passenger aircraft, recommended in the 2004 Fleet Plan Study, because it did not meet the requirement established by NASA.

### **Management Action Taken**

During the course of our audit, we provided updates to the Aircraft Management Division. Based on our updates, management took action to address our issues related to the 2-hour immediate response requirement and the use of the 12-passenger, long-range aircraft for cost comparison purposes.

In December 2006, NASA’s Aircraft Management Division reviewed the requirements used in the A-76 studies completed in August 2006 and, in January 2007, reacquired the services of CDA to update the A-76 MMA studies for Johnson, Kennedy, and Marshall.

On February 7, 2007, CDA completed the revised MMA studies using a 4-hour response time and a smaller aircraft. Results of the revised studies indicated that Johnson and Kennedy should continue operating their respective, current Gulfstream aircraft for the near term and Marshall should pursue the use of a private sector provider fractional lease. Specifically, the revised Johnson and Kennedy studies showed that costs could be reduced by \$893,000 (7.3 percent of current costs) and \$366,000 (4.6 percent of current costs), respectively, over 5 years by using a private sector provider for all mission required flights. CDA recommended continuing operation of the current aircraft at Johnson and Kennedy for the near term because “replacing a single aircraft may be insufficient to cover conversion costs and increased risk.”

The revised results for Marshall indicated a fractional lease, for mission required flights only, could potentially save NASA \$3.5 million over 5 years, or about 23 percent of current costs. CDA, however, recommended that NASA evaluate the costs and benefits of replacing all three Gulfstream MMA with a single program such as a private sector provider. CDA further noted that “the combined efficiencies of using a single contractor for all three Centers may be sufficient to tip the balance in favor of a consolidated solution”—that is, consolidating all three MMA programs under a single provider and eliminating the Johnson and Kennedy MMA as well.

On March 28, 2007, the Aircraft Management Division, working with the NASA Office of Procurement, issued a request for information for commercial aviation transportation services from private sector providers. The request for information is for planning purposes only. However, NASA will use the responses to evaluate the price and mission effectiveness of commercial transportation services in lieu of operating NASA’s own aircraft at any or all three of the MMA Centers.



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## **FINDING B: MARSHALL'S COST DATA WAS UNSUPPORTED**

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Aircraft operations cost data provided to CDA by Kennedy and Johnson for the two MMA, and by Dryden and Wallops for the two PSA was adequately supported. However, the aircraft operating cost data Marshall provided to CDA for use in preparing the Marshall MMA A-76 study was not supported and not all direct costs were provided to CDA. As a result, Marshall's A-76 study completed in August 2006 supported the conclusion of retaining the MMA in service at Marshall for the near term. Subsequently, a revised A-76 study was completed in February 2007 that considered all costs. The results of the revised study concluded that obtaining a private sector provider with fractional lease was most cost beneficial for the Marshall MMA program.

### **Cost Data Provided by Dryden, Kennedy, Johnson, and Wallops Was Supported**

The CDA statement of work required Dryden, Kennedy, Johnson, Marshall, and Wallops to supply aircraft operating cost data to CDA for the purpose of conducting A-76 studies on each Centers' applicable MMA or PSA operations. Each Center was asked to provide CDA with their current aircraft operating costs, both variable and fixed, which included fuel; variable maintenance and spares; variable crew expenses; fixed crew salaries, benefits, and training; and fixed maintenance. We verified the accuracy of the data provided and reviewed contractor reports showing crew salaries, benefits and training, aircraft maintenance performed, fuel logs, and gas receipts. Based on our review of documentation, we concluded the cost data provided by Dryden, Kennedy, Johnson, and Wallops was properly documented and supported. However, with the exception of fuel cost data, Marshall was not able to provide adequate documentation to support the aircraft operating cost data it provided to CDA.

### **Marshall Provided Unsupported Cost Data to CDA**

The Marshall Air Operations staff member responsible for compiling the data used by CDA was unable to provide supporting documentation for cost figures used in the Marshall A-76 study. He stated that he could not support the data because he had not developed the data and had relied on other people for the data. The staff member stated that he was not familiar with how the data was derived and did not document from whom he had obtained the data. Because the Marshall MMA is operated by a contractor that supplied the Marshall Aircraft Operations staff member with aircraft operating cost data,

we met with the contractor's Program Manager to determine if he had documentation to support the data.

The contractor's Program Manager was able to provide us some documentation, but that documentation did not support the data NASA submitted for the A-76 study. We found the following discrepancies:

- The contractor's Program Manager provided documentation for crew fixed costs of \$385,753; however NASA submitted a figure of \$416,900—a difference of \$31,147.
- The contractor's Program Manager provided documentation for maintenance labor fixed costs of \$446,074; however NASA submitted a figure of \$442,217—a difference of \$3,857.
- Variable costs for crew expenses were reported as \$40.58 per flight hour based on 339 flight hours for fiscal year (FY) 2005. However, when the contractor's Program Manager and the NASA Air Operations staff member responsible for compiling the information went through each travel voucher for FY 2005, they calculated \$76.79 per flight hour. The Marshall staff member stated that \$76.79 per flight is the amount that should have been submitted to CDA based on his review of FY 2005 travel vouchers. Using \$76.79 instead of \$40.58 per flight hour would have increased crew expenses by \$14,316 based on the projected utilization total of 400 flight hours.

Other costs not supported by the NASA staff member were

- variable costs for maintenance parts reported as \$1,142.50,
- maintenance parts fixed costs reported as \$43,927, and
- fixed costs for the aircraft/hanger lease reported as \$142,846. (An e-mail from the Office of Procurement, dated November 22, 2005, sent to the NASA staff person stated the FY 2005 lease costs for the hanger were \$139,713, a difference of \$3,133.)

In addition, we found \$369,467 of direct costs that Marshall did not submit to CDA for inclusion in the August 2006 A-76 study. This total comprises the contractor's Program Manager's salary, the dispatcher's salary, the cost of generating reports, profit, expense for training, travel for training, travel for maintenance meetings, and inspection items directly associated with the Marshall MMA program.

## **Management Action Taken**

During the course of our review, we provided updates to the Aircraft Management Division. On the basis of our updates, management took action to address our issues related to Marshall cost data.

In January 2007, the Aircraft Management Division reacquired the services of CDA to update the A-76 MMA studies for Johnson, Kennedy, and Marshall. The revised studies included updated and complete cost data for Marshall aircraft operations to include the additional costs of operating the Marshall MMA.

On February 7, 2007, CDA completed the revised MMA studies. The results for Marshall indicate a fractional lease alternative, for mission required flights only, has the potential of saving \$3.5 million over 5 years or about 23 percent of current costs.

However, the updated MMA studies included the \$369,467 as overhead costs, not direct costs. In addition, because CDA included the \$369,467 as overhead, they did not include the OMB Circular A-76 required 12 percent overhead factor. However, the inclusion of \$369,467 and the use of a 12 percent overhead factor would not have materially changed the result of the February 2007 Marshall MMA study.



## Scope and Methodology

We conducted fieldwork at NASA Headquarters, Dryden, Johnson, Kennedy, Marshall, and Wallops. We met with the CDA representative who completed the A-76 studies in order to understand the process used in completing the studies.

We reviewed FY 2006 flight logs, which included MMA flight requests, flight itineraries, passenger/crew manifests, and aircrew flight forms obtained from the Aircraft Management Division, for all five aircraft. Data in these logs included the purpose, itinerary, and passenger list of each flight that had to be pre-approved by Center approving officials and forwarded to the Headquarters Aircraft Management Division for review and final approval. The aircrew flight form states the actual number of flight hours for each flight.

Our evaluation of the A-76 studies for reliability included (1) reviewing CDA's Center questionnaires and (2) obtaining source documentation supporting the numerical data used to produce the reported numbers for the cost analysis. The questionnaires included the following topics:

- estimated annual flight hours of mission requirements and other official travel;
- aircraft characteristics, for example, size, capacity, and cargo capacity; and
- aircraft operating costs—fixed and variable.

The Centers responded directly to CDA and were not required to include any supporting documentation for their responses. Also, the Headquarters Aircraft Management Division did not have input or review the forms prior to submission to CDA. Through field visits, we obtained supporting documentation for the data reported in the questionnaires.

In addition, we interviewed Aircraft Management Division officials, the Assistant Associate Administrator for Space Shuttle, Program Analysis and Evaluation's official, and aircraft management staff at the five Centers to discuss the MMA and PSA programs.

We reviewed the following documents:

- OMB Circular A-76, "Performance of Commercial Activities," March 1996 and May 2003 (revised)
- OMB Circular A-126, "Improving the Management and Use of Government Aircraft," May 22, 1992

- NPR 7900 3A, “Mission Management Aircraft Flight Operations,” April 8, 1999
- NPR 7900 3A, “Mission Management Aircraft Flight Operations,” December 1, 2005 (Interim Revision)
- NPR 7900.3B, Chapter 4, “Mission Management Aircraft Operations,” December 30, 2006 (in draft)
- NASA Program Analysis and Evaluation, “Review of NASA Mission Management Aircraft Requirements,” December 1, 2005
- CDA, “Aviation Services Study: Johnson Space Center Mission Management Aircraft (Revised),” February 7, 2007
- CDA, “Aviation Services Study: Kennedy Space Center Mission Management Aircraft (Revised),” February 7, 2007
- CDA, “Aviation Services Study: Marshall Space Flight Center Mission Management Aircraft (Revised),” February 7, 2007
- CDA, “Aviation Services Study: Dryden Flight Research Center Program Support Aircraft,” August 15, 2006
- CDA, “Aviation Services Study: Wallops Flight Facility Program Support Aircraft,” August 15, 2006
- CDA, “Aviation Services Study: Johnson Space Center Mission Management Aircraft,” August 11, 2006
- CDA, “Aviation Services Study: Kennedy Space Center Mission Management Aircraft,” August 11, 2006
- CDA, “Aviation Services Study: Marshall Space Flight Center Mission Management Aircraft,” August 11, 2006
- CDA, “Mission Management Aircraft Fleet Plan 2004,” July 28, 2004

We performed this audit from October 2006 through April 2007 in accordance with generally accepted government auditing standards.

**Use of Computer-Processed Data.** We did not use computer-processed data to perform this audit.

## Review of Internal Controls

NASA's issuance of Chapter 3, "Mission Management Aircraft Flight Operations," NASA Procedural Requirements 7900.3A, "Aircraft Operations Management," dated December 1, 2005, established policy and procedures for management, use, operation, and control of Government aircraft when used or controlled by NASA to transport passengers or cargo. Overall, the 2005 revision represents a complete rewrite of the MMA chapter content that was developed to more closely align NASA policy regarding MMA flight operations with OMB Circular A-126. The revision, as it stands, significantly strengthens oversight and clarifies guidance for NASA's MMA operations and use of program support aircraft.

However, no controls were in place to ensure that the statement of work requirements used by CDA when completing the A-76 studies were valid and necessary (Finding A). Additionally, there were no controls in place to ensure that data submitted by the Centers directly to CDA were reliable and fully supported. This resulted in unsupported cost data (Marshall) submitted to CDA and used in the completion of the A-76 study (Finding B).

## Prior Coverage

During the last 13 years, GAO and the NASA OIG have issued six reports of particular relevance to the subject of this report.

### Government Accountability Office

"NASA Travel: Passenger Aircraft Services Annually Cost Taxpayers Millions More Than Commercial Airlines" (GAO-05-818, August 2005)

### National Aeronautics and Space Administration

"A-76 Study of NASA-3 Aircraft" (IG-99-057, September 30, 1999)

"Aircraft Consolidation at the Dryden Flight Research Center" (HA-96-007, August 12, 1996)

"Consolidation of Aircraft at the Dryden Flight Research Facility" (HA-96-001, December 7, 1995)

"NASA Aircraft Management" (LA-95-001, March 28, 1995)

"Wallops Flight Facility Aircraft/Airport Operation" (GO-94-003, March 29, 1994)

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## MANAGEMENT COMMENTS

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National Aeronautics and  
Space Administration  
**Headquarters**  
Washington, DC 20546-0001



May 10, 2007

Reply to Attn of: **Aircraft Management Division**

**TO:** Assistant Inspector General for Auditing

**FROM:** Director, Aircraft Management Division

**SUBJECT:** Management Response to Draft Audit Report entitled "NASA Mission Management and Program Support Aircraft A-76 Studies" (Assignment No. A-06-029-00)

Thank you for the opportunity to comment on the Draft Audit Report, Assignment A-06-029-00, provided on April 11, 2007. We have no comment in response to the report, but would like to extend our appreciation to the audit team. Their questions and suggestions during the audit stimulated discussion and improved the quality of the finished studies.

A handwritten signature in blue ink, appearing to read "Joseph Walker".

Joseph Walker

cc:  
Office of Infrastructure and Administration/Mrs. Dominguez  
Office of Infrastructure and Administration/Mr. Abbed  
Office of Infrastructure and Administration/Mr. Lapointe



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House Committee on Science and Technology  
House Subcommittee on Space and Aeronautics



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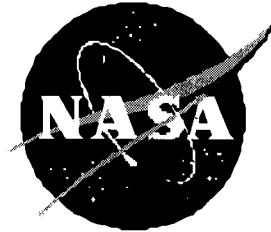
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MAY 17, 2007

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