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SMITHSONIAN INSTITUTION

Care of National Air and Space Museum Aircraft

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Summary

Smithsonian Institution: Care of National Air and Space Museum Aircraft

At the request of Senator Kay Bailey Hutchison, GAO last year reviewed the care of the aircraft collection of the Smithsonian's National Air and Space Museum (NASM). In its October 1995 report, SMITHSONIAN INSTITUTION: Better Care Needed for National Air and Space Museum Aircraft (GAO/GGD-96-9, October 19, 1995), GAO found that NASM committed relatively few resources to aircraft restoration, compared to other museum activities. However, even if NASM restored more aircraft, the museum lacked adequate storage facilities to protect them from deterioration.

NASM's storage facilities, located mainly in Suitland, Maryland, consisted of buildings lacking humidity controls or air-conditioning, some buildings had leaking roofs, and only some were heated. As a result, the aircraft in storage were deteriorating, including previously restored aircraft. NASM has consistently requested increased funding for collections management and for storage facilities repairs in recent years, but NASM must compete with other Smithsonian museums for limited resources and had been unable to obtain needed funding. NASM officials cited plans for a new extension facility at Dulles Airport, Virginia, as the solution. As currently structured, the Smithsonian will have to raise at least \$100 million in private funds for its construction.

GAO made several recommendations to address the care of the collection. In August 1996, NASM's Director said actions were underway that addressed the GAO recommendations. Further, in September 1996, the Smithsonian Board of Regents approved a resolution encouraging the formation of partnerships with other museums that could care for Smithsonian artifacts as a means of reducing storage problems. It appears that the Smithsonian is taking steps in the right direction to improve the care of aircraft in the NASM collection. To be successful, the Smithsonian will have to carry through on its initiated actions to develop a more clearly defined mission, collection priorities, and plans for the care of aircraft. Further, it remains to be seen how successful the Smithsonian will be in raising private funds for the Dulles extension and how long this effort will take.

Statement

Smithsonian Institution: Care of National Air and Space Museum Aircraft

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss the report that we issued last October to Senator Kay Bailey Hutchison on matters relating to aircraft restoration at the Smithsonian Institution's National Air and Space Museum (NASM).¹ Senator Hutchison asked us to review whether NASM restored a sufficient number of aircraft to prevent deterioration of its collection. Our review included an assessment of the rate of aircraft restoration, an examination of the adequacy of facilities for preserving aircraft, and an identification of options to better care for the collection.

In general, we found that NASM committed relatively few resources to restoration, compared to (1) other NASM museum activities and (2) the resources committed by the Air Force Museum in Dayton, Ohio. But we also found that even if NASM increased its restoration efforts, the museum would not have enough space with environmental controls to properly store or display the restored aircraft.

Let me now summarize our findings with respect to NASM's preservation of its aircraft collection.

Background

In October 1995, NASM said that of the 344 aircraft in its collection, 62 were on display at the museum on Washington's Mall; 210 were stored at the Paul E. Garber facility, in Suitland, Maryland; 58 were on loan to other museums; 12 were stored at Dulles International Airport, Virginia; 1 was stored at Department of Defense facilities in Tucson, Arizona, and 1 at Andrews Air Force Base, Maryland. NASM also estimated that 245 of its 344 aircraft were exhibitable, 55 needed minor work to be exhibitable, and 44 needed major restoration work.

Although the Smithsonian started collecting aircraft artifacts in 1876, much of its collection was acquired after World War II by Smithsonian employee Paul E. Garber, an aviation buff who joined the Institution in 1920. Mr. Garber obtained many of the Smithsonian's aircraft from a collection assembled at the conclusion of World War II by General Hap Arnold, who believed that it was in the national interest to obtain one example of each type of World War II aircraft. Around 1950, the Smithsonian's share of that collection was moved to a 21-acre tract of federally owned land in Suitland, Maryland, for the Institution's then newly

¹SMITHSONIAN INSTITUTION: Better Care Needed for National Air and Space Museum Aircraft (October 19, 1995, GAO/GGD-96-9).

organized National Air Museum. The aircraft were mainly stored outside from the early 1950s until they were moved into temporary storage buildings, which were constructed primarily in the 1950s, 1960s, and 1970s.

In 1966, Congress changed the name of the National Air Museum to the National Air and Space Museum and indicated that NASM should “memorialize the national development of aviation and space flight; collect, preserve, and display aeronautical and space flight equipment of historical interest and significance; serve as a repository for scientific equipment and data pertaining to the development of aviation and space flight; and provide educational material for the historical study of aviation and space flight.”

NASM operates on both federal funds, which are used primarily to pay employee salaries, and private donations, which largely fund exhibits. In fiscal year 1994, NASM received about \$15.4 million in federal appropriations, grants, and contracts. It also received \$10.6 million in nongovernmental funds, such as private donations and theater and gift shop revenues.

Few Resources Devoted to Restoration

We found that NASM devoted relatively few resources to aircraft restoration. In fiscal year 1994, NASM devoted about \$2.7 million, or 14 percent of its total expenditures, on collections management, which includes aircraft restoration.² From 1990 to 1995, NASM completed seven aircraft restoration projects, while continuing four other restoration projects. We estimated that it would take about 100 years to restore the 99 aircraft in its collection needing restoration work at current staffing levels.

Inadequate Storage Facilities Were Causing the Collection to Deteriorate

We reported that even if NASM were to restore more aircraft, the museum did not have adequate storage facilities to protect them from deterioration. Although the indoor storage facilities at Suitland were an improvement over conditions when much of the aircraft collection was stored outdoors, the buildings did not have humidity controls or air-conditioning, some had leaky roofs, and only a few were heated. Because the storage facilities were not environmentally controlled, the wood, fabric, and even metals used in aircraft were susceptible to deterioration and corrosion when exposed to great fluctuations in temperature and humidity. NASM had

²NASM's collections management department includes the restoration staff; personnel who handle the shipping, receiving and storage of artifacts; the conservator's staff; and the archival staff.

consistently requested increased funding for collections management and for storage facilities repairs in recent years, but it had to compete with other Smithsonian museums for limited resources and was unable to obtain needed funding.

From 1991 to 1994, NASM undertook a conservation assessment, examining the condition of the museum's 13 storage buildings in Suitland and the condition of the artifacts contained in them. According to the assessment, the buildings containing artifacts suffered from wide temperature fluctuations, leaky roofs, structural problems, and dirt and dust accumulation. An assessment of aircraft engines and wing sections housed in one building revealed corrosion, dirty surfaces, and peeling paint. Another building was reported to be in poor condition, with its concrete slab showing several major cracks and crumbling along the edges as well as a rusting steel structure.

The conservation assessment also commented on overall preservation practices, stating that the condition of many objects stored at Suitland illustrated what can happen when a collection is permitted to grow and develop without providing direction and funding for its preservation.

We reported that the Smithsonian had spent \$9.1 million over the previous decade to improve the Suitland facility, including roof repairs, asbestos removal, and storm-water structures. The Smithsonian estimated that 35 percent of these improvements were made for NASM's share of the Suitland facility, which is also used by other Smithsonian museums. Also, a new artifacts storage facility that NASM shares with the Smithsonian's National Museum of American History and a new chemical facility for NASM were recently constructed at Suitland at a cost of about \$1.4 million.

Despite these improvements, officials from the Smithsonian's Office of Design and Construction, which is responsible for maintaining and repairing Smithsonian facilities, said last year that over the next 5 years, the Suitland facility needed at least \$7.4 million in repairs and the Mall museum needed at least \$33.8 million in repairs. However, the officials said that it was unlikely that NASM would receive the needed repair funds because NASM must compete with other Smithsonian museums for scarce repair funds. The officials said that the Smithsonian had a backlog of \$250 million in deferred maintenance for all of its museums, could only afford to make about \$25 million in repairs each year, and accrued another \$32 million to \$35 million in additional repair work each year.

Future Plans for the Dulles Extension and Additional Aircraft Are Uncertain

NASM officials cited plans to build an extension at Dulles Airport as the solution to the museum's storage and restoration problems. NASM plans to finance the extension through private fundraising and funds pledged by Virginia. Federal funds will be used for planning and design of the facility. However, it was uncertain when or whether the extension will be built, given the museum's need to raise at least \$100 million in private funds for its construction. The Smithsonian plans to begin fundraising for the extension after construction of the project is authorized.³ Also, NASM had plans to acquire 80 aircraft over the next 30 years, which would have exacerbated its storage problems.

Consideration of Other Alternatives Could Lessen NASM's Restoration and Preservation Burden

During our review, several experts familiar with NASM's aircraft collection questioned whether NASM should have collected certain aircraft, such as a large collection of World War II Japanese aircraft, a Boeing 727—a commercial aircraft still widely used—and two McDonnell F-4s. It was not clear whether such aircraft fulfilled Congress' original intent to establish a national museum that showcases this country's most important aviation achievements. We indicated that reducing the size of the collection and undertaking second-party aircraft restoration with temporary display loans were viable alternatives to lessen NASM's burden of caring for a large aircraft collection.

NASM reported that it had deaccessioned 11 aircraft from 1990 to 1995 and loaned 18 aircraft to other museums for restoration and storage from 1993 to 1994. However, NASM had not developed a strategy to deaccession aircraft and had not accelerated pursuing second-party restorations with temporary loans, despite repeated recommendations to do so by its advisory committee.

Conclusions and Recommendations of Our October 1995 Report

We concluded that although NASM is popular with the public and has preserved many of our nation's historic air and space artifacts, the management of the aircraft collection that is not generally seen by the public needed improvement. We also reported that since NASM was established, certain aspects of the museum's mission as a national air and space museum have been vague. For example, NASM's authorizing legislation does not specify whether the museum should duplicate collections at other federally funded air and space museums or whether a national museum should include foreign aircraft. We reported that NASM

³Legislation authorizing construction of the Dulles extension was recently approved by Congress (S. 1995) and had not yet been signed by the President as of September 19, 1996.

should determine if its current collection is too large in view of the resources and facilities available.

We also concluded that the planned extension at Dulles could help alleviate NASM's storage facility problems, but funding was uncertain and the extension may take several years to complete.

We recommended that the Secretary of the Smithsonian, together with the NASM Director:

- consult with the appropriate Committees of Congress to better define the mission of a national air and space museum, and within that definition, establish criteria for historically and technologically significant aircraft. As part of this effort, the Secretary and NASM Director should specifically consider the extent to which the museum should (1) include foreign aircraft in its collection and (2) duplicate aircraft contained in the collections of other federally funded museums;
- determine the relative priority of the aircraft contained in the NASM collection;
- determine the number and types of aircraft that should be retained, after establishing criteria for historically and technologically significant aircraft and considering expected levels of funding and storage capacity; and
- deaccession those aircraft in the NASM collection that either do not meet the historically and technologically significant criteria or cannot be adequately stored and maintained with available resources. In pursuing the latter, we recommended that consideration should also be given to second-party restorations and temporary loans of aircraft to other institutions.

We further recommended that the NASM Director:

- develop a management plan for those aircraft that are to remain in the NASM collection, and
- further explore private funding alternatives and the feasibility of options to better care for aircraft, such as constructing a smaller, environmentally controlled facility to house those aircraft that will remain in the collection and are currently in inadequate storage facilities, as an initial phase of the Dulles extension.

Status of Smithsonian Actions

We recently asked NASM officials about the status of action taken regarding our recommendations. In response, the NASM Director wrote us in August 1996 that NASM

- has drafted a new mission statement, which is expected to be completed next month, that emphasizes the basic values outlined in the original legislation establishing the National Air Museum in 1946. Further, the Director indicated that as NASM prepares to move to the Dulles extension in about 5 years, it will assess each artifact to ensure that it rightfully belongs in the collection and plays a meaningful role in exhibits and for research, or whether it could be deaccessioned or traded;
- has not yet established collecting priorities that are linked directly to its mission statement and prioritized the aircraft in its collections based on their historical and technological significance;
- is preparing a list of artifacts that will be relocated to the Dulles extension for public display and plans to assess the condition of, and develop an action plan and treatment schedule for, each aircraft on the list. For those aircraft that cannot be displayed immediately, a preservation and storage strategy will be developed; and
- will launch a major capital campaign this fall for the Dulles extension after Congress has authorized construction of the facility.

We also note that a resolution just approved by the Smithsonian Board of Regents on September 16, 1996, addressed the issue of loaning objects to other museums:

“The formation of partnerships with existing or emerging museums throughout the country could make the Institution more reflective of our nation. It would also address the problem of . . . exhibiting the constantly growing collections. By dispersing these in a responsible manner, public access . . . could be enhanced. Such partnerships also would help to ameliorate the lack of space and funds to build new museums on the Mall.”

This resolution is a first step toward providing NASM with new guidance on loaning aircraft to other museums. According to the Smithsonian, the Board of Regents adopted this resolution with the understanding that the Secretary will ensure that new operational guidelines will be issued. Further, NASM will have to implement this policy for the aircraft collection.

In general, it appears that the Smithsonian is taking steps in the right direction to improve the care of aircraft in the NASM collection. To be successful, the Smithsonian will have to carry through on its initiated actions to develop a more clearly defined mission, collection priorities,

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and plans for the care of aircraft. Further, it remains to be seen how successful the Smithsonian will be in raising private funds for the Dulles extension and how long this effort will take.

Mr. Chairman, that concludes my prepared statement. We would be pleased to answer any questions.

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