

September 1992

# 1993 AIR FORCE BUDGET

## Potential Reduction for C-17 Initial Spares



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**National Security and  
International Affairs Division**

B-249529

September 18, 1992

The Honorable Sam Nunn  
Chairman, Committee on Armed Services  
United States Senate

The Honorable Les Aspin  
Chairman, Committee on Armed Services  
House of Representatives

The Honorable Daniel K. Inouye  
Chairman, Subcommittee on Defense  
Committee on Appropriations  
United States Senate

The Honorable John D. Murtha  
Chairman, Subcommittee on Defense  
Committee on Appropriations  
House of Representatives

This report discusses the status of initial provisioning of spare parts for the C-17 military transport aircraft. We presented this information to your staffs in briefings during the week of July 6, 1992. Conference Report 102-311, which accompanied the National Defense Authorization Act for fiscal year 1992 (Public Law 102-190), requires that we periodically report to the House and Senate Committees on Armed Services on the cost, schedule, and performance of the C-17 program. An earlier report<sup>1</sup> provided information on the status of development, production, and testing of the C-17, which is being developed and produced by the Douglas Aircraft Company.

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**Results in Brief**

The Air Force's fiscal year 1993 Aircraft Procurement budget request for C-17 initial spares of \$179.2 million is not needed because (1) reductions in the program size and delays in the delivery schedule for aircraft have significantly changed initial spare part requirements, (2) Douglas has already procured enough spares to meet currently projected needs for at least 2 years as part of its interim contractor support responsibilities, and (3) other available funding for C-17 spare parts should cover any very long lead time spares needed before fiscal year 1994 funding is available.

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<sup>1</sup>Military Airlift: Status of C-17 Aircraft Development Program (GAO/NSIAD-92-205BR, Apr. 20, 1992).

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Further, the Air Force is canceling purchase orders for C-17 initial spares because of the change in program quantities and delayed production deliveries. It is also de-obligating funds for those purchases. These funds were part of the fiscal year 1990 Aircraft Procurement appropriation and may no longer be needed.

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## Background

The C-17 military transport, developed for the Air Force by McDonnell Douglas Corporation, Douglas Aircraft Company, is designed to airlift substantial payloads over long ranges without refueling and to carry a full range of cargo directly into small, austere airfields. The Air Force awarded Douglas a fixed-price incentive contract for the full scale engineering development of the C-17 aircraft and the production of one flyable test aircraft, two non-flying test articles for structural and durability testing, and six production aircraft. The Air Force originally planned to buy 210 C-17 aircraft for about \$42 billion. However, in April 1990, as a result of the Major Aircraft Review, the Secretary of Defense reduced the planned purchase to 120 aircraft at a currently estimated cost of \$35.8 billion.

Initial provisioning is the management process for determining and acquiring the range and quantity of items that will be needed to support and maintain a new weapon system for an initial period of operation. Initial provisioning is necessary to provide parts for maintenance until the normal supply channels can take over and supply replenishment spare parts. Its purpose is to provide spares support prior to or in conjunction with the delivery of the weapon system.

The Air Force plans to use government personnel and facilities to maintain the C-17. However, until that in-house capability is established, the C-17 development contract requires Douglas to provide interim contractor support for one year.<sup>2</sup> Such support involves providing spares at all levels of maintenance for 16 C-17 aircraft, contractor-furnished equipment, and C-17 aircraft engines located at the initial squadron operation until the in-house capability is established. Spares not used during this period will transfer to the Air Force. As of March 17, 1992, the Air Force planned to spend \$282.7 million for Douglas to procure spare parts and other items needed for interim contractor support.

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<sup>2</sup>The Air Force has options to extend interim contractor support for 2 years beyond the first year of operation.

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In February 1989, the Air Force began to contract for spare parts, in addition to the parts that Douglas will provide, that will be needed to support worldwide requirements after Douglas completes interim contractor support. As of April 30, 1992, the Air Force had obligated \$71.5 million for purchasing these spares.

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## Douglas' Initial Spares Should Be Adequate for at Least Two Years of Support

Douglas officials told us they have on hand, or on order, sufficient spares for 16 aircraft, each operating for an entire year at 90 flying hours per month. We calculate that those spares will be able to support over 17,000 hours of aircraft operations. However, according to the current program delivery schedule, only eight aircraft will be delivered during the first year of interim contractor support. An additional eight aircraft are scheduled for delivery in the second year.

The first operational aircraft is scheduled to be delivered in February 1993. Using a mid-month delivery schedule and a monthly aircraft flying rate of 90-hours,<sup>3</sup> we calculate that the C-17 fleet will not accumulate 17,000 flying hours until January 1995, almost 2 years after the initial squadron begins operations. Consequently, based on the aircraft delivery schedule, we believe Douglas has acquired, or will have acquired, enough spares to support all aircraft that will be delivered during the first 2 years. Douglas officials involved with C-17 logistic support agreed with this assessment.

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## Air Force Is Canceling Initial Spares Orders and De-obligating Funds

Air Force initial provisioning directives require that programming checklists—designed to provide program data governing provisioning of spares and repair parts—be developed with data that is consistent with replenishment systems and timely updates to assure accurate initial spares computations. However, the Air Force did not update its programming checklist until July 1991, about 15 months after the number of C-17 aircraft to be procured was reduced. Logistics officials continued to prepare provisioning item orders through September 1991, using requirements and delivery dates computed under the outdated programming checklist.

The Air Force has awarded a total of \$71.5 million in orders for C-17 initial spares beyond those being acquired by Douglas for interim contractor

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<sup>3</sup>We believe this flying hour rate is optimistic for determining requirements for initial spares. During a recent 8-month period, the C-5 and C-141 aircraft averaged 49.6 and 74.7 flying hours per month, respectively, for the entire fleet.

support. An Air Force re-computation of initial spare part requirements using the current programming checklist resulted in many of these items no longer being needed. As a result, the Air Force is canceling some of these orders, and as of July 17, 1992, had de-obligated \$35.2 million, which was part of the fiscal year 1990 appropriation. Air Force officials told us they planned to use the de-obligated funds to acquire additional quick engine change kits<sup>4</sup> and spare engines. The plan had not been approved by higher authorities as of July 21, 1992, and, in comments on a draft of this report, the Department of Defense stated that the Air Force has established requirements for these funds outside of the C-17 program. The Air Force also has \$56 million in fiscal year 1992 funding for procurement of spare engines and \$31 million for quick engine change kits.

## Additional Funding for C-17 Initial Spares Not Needed at This Time

Through fiscal year 1992, the C-17 program has received a total of \$468.7 million in funds for initial spares, including about \$235 million that has been authorized to be expended for spares to be procured by Douglas for interim contractor support. Douglas' spares are expected to be adequate to support the operational inventory of aircraft until well into fiscal year 1995. In addition, the remainder of the funding already available to the Air Force should be adequate to procure the very long lead time spares that will be needed for the remainder of fiscal year 1995 and beyond. Therefore, we believe additional orders do not need to be placed before fiscal year 1994 funds are available.

On July 21, 1992, we met with Air Force officials responsible for C-17 initial provisioning to discuss our conclusion that (1) spares acquired or to be acquired by Douglas will last for at least 2 years of operation considering the current aircraft delivery schedule and (2) additional funding for initial spares is not needed at this time. While these officials did not dispute our assessment that Douglas-acquired spares will last for at least 2 years, they stated that they will need some of the fiscal year 1993 funding for additional engine modules and quick engine change kits, which will not be provided by Douglas (see app. I). However, the officials could not tell us how many engine modules or quick engine change kits would need to be ordered in fiscal year 1993.

<sup>4</sup>A quick engine change kit is all of the externally mounted accessories and hardware that surround the basic engine.

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We could not assess this need since the number of items needed could not be quantified nor their need date established. But we noted that Douglas has 15 quick engine change kits on order and that the Air Force's funding appropriation for initial spares through fiscal year 1992 contained \$55.4 million for an additional 14 quick engine change kits. We believe these kits should be sufficient so that the Air Force does not need to order additional quick engine change kits until fiscal year 1994 funds are available.

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### Matters for Consideration by Congress

The Congress may wish to consider denying the Air Force's fiscal year 1993 Aircraft Procurement budget request for C-17 initial spares of \$179.2 million. Further, the Congress may wish to consider rescinding \$35.2 million in de-obligated funds from canceled C-17 spare parts orders. These funds were part of the fiscal year 1990 Aircraft Procurement Appropriation.

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### Agency Comments and Our Evaluation

Department of Defense and Air Force personnel provided official oral comments on a draft of this report on August 18, 1992. Written comments, which generally covered the points addressed on August 18, were provided on September 3 and are included in appendix II. The Department concurred with us that C-17 spares acquired by Douglas Aircraft Company will last 2 years. However, the Department contends that the Air Force will still need at least \$122.6 million of the \$179.2 million requested for fiscal year 1993, as shown in appendix I. This new spending forecast includes \$43.7 million for 13 quick engine change kits (\$22.1 million for fiscal year 1990 kits, which is identified as a shortfall in fiscal year 1992 funds, and \$21.6 million identified as needed for fiscal year 1993 quick engine change kits). In addition to those funds, the Air Force plans to spend \$31 million in fiscal year 1992 funds for the kits. The comments fail to explain why additional kits need to be ordered before fiscal year 1994 funding is available. However, if additional kits are needed, at least the \$22.1 million for fiscal year 1990 kits could have been funded from the fiscal year 1990 de-obligated C-17 funds.

Also included in the new spending forecast is \$40.1 million for interim contractor support. We were told by Douglas officials that current funding is sufficient to support the initial year of interim contractor support. Unless the Air Force is planning to exercise options for interim contractor support beyond the initial year, we continue to question the necessity of these funds in fiscal year 1993.

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## Scope and Methodology

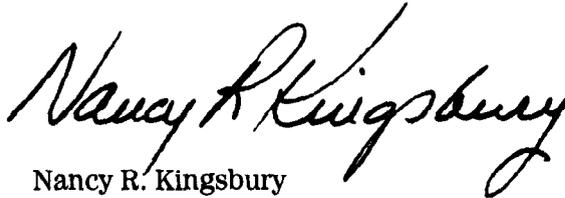
We prepared this report based on our ongoing work on (1) initial provisioning of the C-17 aircraft and (2) cost, schedule, and performance of the Douglas Aircraft Company's development and production of the C-17 aircraft. We interviewed officials and reviewed relevant documentation at Air Force Headquarters, the Air Force Air Logistics Center at Kelly Air Force Base, the Air Force Materiel Command at Wright/Patterson Air Force Base, and the Douglas Aircraft Company's C-17 production facility at Long Beach, California.

Our work was conducted between December 1991 and August 1992 in accordance with generally accepted government auditing standards.

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We are sending copies of this report to the Secretaries of Defense and the Air Force; the Director of the Office of Management and Budget; and other interested parties. We will make copies available to others upon request.

If you have any questions, please call me on (202) 275-4268. Major contributors to this report are listed in appendix III.



Nancy R. Kingsbury  
Director  
Air Force Issues



# Air Force Spending Forecast C-17 Initial Spares—Fiscal Year 1993

<b>Initial spares item</b>	<b>Estimated cost (millions)</b>
Fiscal year 1992 shortfall (for fiscal year 1990 quick engine change kits)	\$22.1
Quick engine change kits	21.6
Engine modules with containers	9.7
Simulator spares	3.5
Provisioning data	0.7
Complex spares	21.0
Readiness spares package (formerly WRSK/BLSS)	3.9
Interim contractor support/ contractor operated storage site	40.1
<b>Total</b>	<b>\$122.6</b>

# Comments From the Department of Defense



PRODUCTION AND  
LOGISTICS

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, DC 20301-8000

September 3, 1992

(L/SD)

Ms. Nancy R. Kingsbury  
Director, Air Force Issues  
National Security and International  
Affairs Division  
U.S. General Accounting Office  
Washington, DC 20548

Dear Ms. Kingsbury:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "MILITARY AIRLIFT: Potential Fiscal Year 1993 Budget Reduction for C-17 Initial Spares," dated August 5, 1992 (GAO Code 392678), OSD Case 9161. The DoD partially concurs with the report.

The Department agrees that because of reductions in the C-17 program size and delays in the aircraft delivery schedule, initial spares procurement actions should be reduced. However, the DoD does not agree that FY 1993 initial spares funding should be eliminated. Based on the latest program planning information from the Air Force, and taking into account the findings from the GAO report, FY 1993 initial spares requirements can be reduced from the programmed level of \$179.2 million to \$122.6 million. This conservative sparing approach is consistent with the DoD Inventory Reduction Plan, which provides the impetus to reduce investment in high cost spares, while meeting weapon systems readiness requirements.

The detailed DoD comments on the draft report findings and matters for Congressional consideration are provided in the enclosure. Suggested technical changes were separately provided to the GAO staff. The DoD appreciates the opportunity to comment on the GAO draft report.

Sincerely,

Colin McMillan

Enclosure

GAO DRAFT REPORT - DATED AUGUST 5, 1992  
(GAO CODE 392678) OSD CASE 9161

"MILITARY AIRLIFT: POTENTIAL FISCAL YEAR 1993 BUDGET  
REDUCTION FOR C-17 INITIAL SPARES"

DEPARTMENT OF DEFENSE COMMENTS

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FINDINGS

- **FINDING A: Douglas' Initial Spares Should Be Adequate For At Least Two Years Of Support.** The GAO reported that Douglas officials have on hand, or on order, sufficient spares for 16 aircraft, each operating for an entire year at 90 flying hours per month. The GAO calculated that the spares will be able to support over 17,000 hours of aircraft operations. The GAO found, however, that only eight aircraft will be delivered during the first year of interim contractor support, and an additional eight aircraft are scheduled for delivery in the second year.

The GAO observed that the first operational aircraft is scheduled to be delivered in February 1993. Using a mid-month delivery schedule and a 90 hours per month flying rate per aircraft, the GAO calculated that the C-17 fleet will not accumulate 17,000 flying hours until January 1995, or almost two years after the initial squadron begins operations. Therefore, the GAO concluded that Douglas has already provisioned for enough spares to meet currently projected needs for at least two years as part of its interim contractor support responsibilities. (pp. 3-4/GAO Draft Report)

- **DOD RESPONSE:** Partially concur. While the GAO assessment of aircraft delivery schedule and associated flying hours is generally correct, contractor initial spares on hand and on order are only for support of C-17 aircraft deployed to Charleston Air Force Base, South Carolina. Additional spares requirements for such items as avionics, engine modules, quick engine change kits, and complex support equipment must be procured in FY 1993 to be delivered in FY 1995 to support additional aircraft and base activations and to transition to organic support.
- **FINDING B: The Air Force Is Canceling Initial Spares Orders And Deobligating Funds.** The GAO reported that, because of the reduction in program quantities and delayed production deliveries, the Air Force is currently canceling purchase orders for C-17 initial spares. The GAO observed that, because

ENCLOSURE

Now on p. 3.

**Appendix II  
Comments From the Department of Defense**

officials used an obsolete programming checklist to compute initial spares requirements, the Air Force awarded a total of \$71.5 million in orders for C-17 initial spares beyond those being acquired by Douglas for interim contractor support. However, the GAO found that, as of June 26, 1992, the Air Force had deobligated \$35 million of the \$71.5 million for initial spares, and plans to acquire additional quick engine change kits and spare engines with the deobligated funds. The GAO also observed that the Air Force received \$55.3 million in prior year funding identified for procurement of spare engines and \$30.3 million for quick engine change kits. (pp. 4-5/GAO Draft Report)

Now on pp. 3-4.

- **DOD RESPONSE:** Partially concur. The Air Force has cancelled some initial spares procurement orders and has deobligated \$35 million in FY 1990 funds for two primary reasons. First, money was deobligated for requirements that could be delayed or deleted, based on C-17 schedule slippage and the program change from 210 to 120 aircraft. Second, a change in Air Force policy prompted the C-17 program to reduce requirements. That change prohibits the manual adjustment of spares requirements at the base level from exceeding computed quantities.
- **FINDING C: Additional Funding For C-17 Initial Spares Is Not Needed At This Time.** The GAO found that, through FY 1992, the C-17 program has received a total of \$468.7 million in funds for initial spares, including about \$235 million that has been authorized to be expended for spares to be procured by Douglas for interim contractor support. The GAO also found that the Douglas spares are expected to be adequate to support the operational inventory of aircraft until well into FY 1995. The GAO concluded that the remainder of the funding already available to the Air Force should be adequate to procure the long lead time spares that will be needed for the remainder of FY 1995 and all of FY 1996, and that funding for spare parts needed after FY 1996 will not be required until at least FY 1994. (pp. 5-6/GAO Draft Report)
- **DOD RESPONSE:** Nonconcur. Douglas Aircraft Company spares are not adequate to support all operational aircraft through FY 1995. Additional spares must be procured in FY 1993 to meet programmed FY 1995 and FY 1996 requirements. Detailed supporting rationale itemizing FY 1993 initial spares requirements is provided in the DoD response to Suggestion 1 below.

Now on pp. 4-5.

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MATTERS FOR CONGRESSIONAL CONSIDERATION

- **SUGGESTION 1:** The GAO recommended that the Congress deny, in its entirety, the Air Force's fiscal year 1993 budget request for C-17 initial spares of \$179.2 million. (p. 6/GAO Draft Report)
- **DOD RESPONSE:** Nonconcur. Full denial of the C-17 initial spares requirement in FY 1993 would not allow procurement of the complex vendor data packages that have not been procured, such as avionics, complex support equipment, and engine modules. To date, provisioning packages have consisted of long lead, structural, non-complex support equipment items, and the commercial auxiliary power unit.

The \$40.1 million interim contractor support requirement for FY 1993 is a priced line item on the existing Douglas contract. The Air Force must exercise that line item, or obtain a bilateral agreement on its deletion or delay, to fulfill its obligation under the existing aircraft contract. Failure to fund that item would jeopardize the very favorable interim contractor support and reliability, maintainability, and availability warranty features of the contract.

Further, it is critical that the quick engine change kits be procured in FY 1993 to support operational requirements in FY 1996-1997. The lead time for these kits is 27-31 months, which requires they be procured in FY 1993. Included in the FY 1993 quick engine change kits buy is the quantity the Air Force had planned to buy in FY 1990-1992, but were unable to execute, due to pricing and kit composition problems with Douglas Aircraft Company.

Due to reductions in the C-17 program size and delays in the aircraft delivery schedule, FY 1993 initial spares requirements can be reduced from the programmed level of \$179.2 million to \$122.6 million. As stated in the accompanying letter, itemization of FY 1992 and FY 1993 initial spares funding requirements is provided below:

Now on p. 5.

**Appendix II  
Comments From the Department of Defense**

<u>FY 1992</u>	
<u>Initial Spares Item</u>	<u>Estimated Cost</u> (\$ in millions)
FY 1990 Quick Engine Change Kits (for 7 delivered engines at Charleston AFB)	\$22.1
Engines	\$56.0
Quick Engine Change Kits	\$31.0
Engineering/Provisioning Data	\$ 6.4
Complex Spares	\$22.3
<b>TOTAL REQUIREMENT</b>	<u>\$137.8</u>
<b>APPROPRIATED FUNDING</b>	<b>\$115.7</b>
<b>SHORTFALL</b>	<b>(\$22.1)</b>
<u>FY 1993</u>	
<u>Initial Spares Item</u>	<u>Estimated Cost</u> (\$ in millions)
FY 1992 Shortfall (for Quick Engine Kits)	\$22.1
Quick Engine Change Kits	\$21.6
Engine Modules with Containers	\$ 9.7
Simulator Spares	\$ 3.5
Provisioning Data	\$ 0.7
Complex Spares	\$21.0
Readiness Spares Package	\$ 3.9
Interim Contractor Support Spares/Contractor Operated Storage Site	\$40.1
<b>TOTAL</b>	<u>\$122.6</u>

Now on p. 5.

- **SUGGESTION 2:** The GAO recommended that the Congress consider rescinding \$35 million in deobligated funds from canceled spare parts orders. (The GAO indicated the funds were part of the fiscal year 1990 appropriation.) (pp. 6-7/GAO Draft Report)
- **DOD RESPONSE:** Nonconcur. The Air Force has established requirements for the FY 1990 \$35 million deobligated funds for other weapon system requirements (i.e., not associated with the C-17 program). That money will be obligated by the Air Force by September 30, 1992.

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# Major Contributors to This Report

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