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DEFENSE INDUSTRY

Status of the C-17 Program and Related Issues Affecting the McDonnell Douglas Corporation

Statement of Nancy R. Kingsbury, Director, Air Force Issues, National Security and International Affairs Division

Mr. Chairman and Members of the Subcommittee:

We are here today to discuss our work on the Air Force's C-17 military transport aircraft. That aircraft is being developed by the Douglas Aircraft Company, a division of the McDonnell Douglas Corporation. As you requested, we also are providing information on certain C-17 financial issues involving the Department of Defense (DOD) and the McDonnell Douglas Corporation.

RESULTS IN BRIEF

The C-17 program continues to face significant schedule, cost, and performance challenges. Because of major schedule delays and increases in the overall cost of the program, Douglas Aircraft is facing an overrun on the development contract. That overrun is estimated to range from $450 million--the company's estimate--to $1.4 billion--an estimate developed by the Office of the Under Secretary of Defense for Acquisition. The Air Force has reduced some performance specifications dealing with the weight of cargo to be carried on operational missions. McDonnell Douglas has identified steps needed to improve the overall management of the program. However, because of Douglas' past performance in implementing corrective actions, questions remain about Douglas Aircraft's ability to implement the needed changes and improve program performance.

In January 1991, the McDonnell Douglas Corporation requested $1 billion in financial assistance from DOD to help overcome an anticipated cash flow shortfall. DOD did not approve providing that assistance, but, at the time of the request, did consider it because of concern about the Corporation's viability and the effect of its financial failure on government programs, in particular the C-17 program. DOD required certain McDonnell Douglas cash flow information to use as a basis for determining the Corporation's actual need. After reviewing the information, DOD asked the Corporation to reassess the cash flow that could be expected from the C-17 program based on a set of assumptions developed by DOD and the Air Force. Some of these assumptions revised some of the ones used in the McDonnell Douglas cash flow analysis. Others related to the amount and timing of funding actions that would take place in relation to the Lot III contract then being negotiated, and a contract for Lot IV which the Air Force and Douglas are currently planning to negotiate.

The Subcommittee has expressed concern that the funding actions referred to in the assumptions--providing long lead and termination liability funding for future production lots beyond that envisioned by the advanced procurement appropriation--provided unusual financial assistance to the Corporation through the C-17 program. We found that the funding actions, referred to in the assumptions and subsequently implemented, obligated funds in support of production Lots III and IV in accordance with DOD and Air Force

regulations. We were told by Air Force and DOD officials that these funding actions are common in DOD aircraft acquisition programs.

However, the funding actions referred to can result in a large percentage of a contract's value being obligated and spent before the final contract is actually awarded and contract deliverables agreed to by the contractor. In this case, 43 percent of the Lot III production contract was obligated before the award. In our opinion, the manner in which funds were obligated to assure continued work on the program prior to contract award may raise concerns about whether the Congress is properly informed that funds appropriated for procurement of final end items may be obligated to support long lead time acquisitions prior to award of a final contract.

BACKGROUND

As you are aware, on October 3, 1991, we testified before the Subcommittee on Oversight and Investigations, House Committee on Energy and Commerce, on several systems involving McDonnell Douglas and the government, including the C-17. We noted that each of the systems had experienced significant technical problems and/or cost overruns. On three of the systems the overruns on the fixed-price development contracts are estimated to total about $2.7 billion.

At that same hearing, the Defense Contract Audit Agency (DCAA) raised questions about the continued financial viability of the Corporation, and the Director of Defense Procurement stated that, if future circumstances created a situation similar to that in early 1991, DOD might consider whether taking steps to prevent the Corporation's failure would be necessary to protect the government's interest.

By almost any measure, McDonnell Douglas is the largest U.S. defense contractor, producing a wide variety of weapon systems and components for each of the military services. Besides the C-17, McDonnell Douglas produces, for example, the T-45 trainer aircraft, the Apache helicopter, the F/A-18 Hornet, the F-15 Eagle, and various missiles and electronic systems. Until January 1991, when the program was canceled, the Corporation was also developing the A-12 attack aircraft for the Navy. McDonnell Douglas is also a major participant in the commercial aerospace industry.

McDonnell Douglas reported net earnings of $306 million in 1990, $219 million in 1989, and $350 million in 1988. However, 1990 net earnings reflect a one-time upward adjustment that resulted from a favorable pension settlement. Without this adjustment, the Corporation would have reported a $105 million loss for 1990 and a third year of declining earnings. These earnings were on revenues of $16.3 billion in 1990, $14.6 billion in 1989, and $14.4 billion in 1988. The Corporation attributes its weak earnings to

significant capital investments to bring large development projects to production over the past several years.

According to the Corporation's 1990 financial statement, major ongoing development efforts on the MD-11 commercial passenger airplane and C-17 military transport have strained facilities and systems of the Douglas Aircraft Company and caused delays in meeting schedules. The Company's transport aircraft business incurred an operating loss of $177 million in 1990, largely as a result of increased borrowing for the MD-11. The Corporation has acknowledged that management problems have contributed to schedule delays at Douglas Aircraft. In an attempt to fix these problems, the company has replaced numerous managers and reduced total employment by about 15,000 in an effort to reduce costs by $700 million.

C-17 MILITARY TRANSPORT

The C-17 military transport is designed to airlift substantial payloads over long ranges without refueling. The Air Force originally planned to buy 210 C-17 aircraft. However, in April 1990, as a result of the Major Aircraft Review, the Secretary of Defense reduced the program to 120 production aircraft at a currently estimated cost of $35.3 billion.

The airplane is being developed under a fixed-price incentive development contract[1] awarded in 1982. In addition to the test aircraft and two non-flying test airframes, the development contract includes two production options for a total of six production aircraft. The ceiling price of the development contract, including Lot I and II production aircraft, is $6.65 billion. A separate fixed-price contract for a third production lot of four aircraft was awarded on July 30, 1991, with a target price of $1.026 billion and a ceiling price of $1.215 billion. Douglas and the Air Force are currently preparing to negotiate a Lot IV contract.

Through fiscal year 1991, the Congress has appropriated $8.46 billion for the C-17 program: $4.69 billion from research,

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[1]A fixed-price incentive contract provides for adjusting profit and establishing the final contract price by application of a formula based on the relationship of total final negotiated cost to total target cost. Under this pricing arrangement, a target cost, target profit, price ceiling, and profit adjustment formula are negotiated. If the final cost is less than the target cost, application of the formula results in a final profit greater than the target profit. Conversely, if the final cost is more than the target cost, application of the formula results in a final profit less than the target profit.

development, test and evaluation funds; $3.73 billion from aircraft procurement funds, and $40 million from military construction funds. Although some of these funds are used to cover government costs, such as management and testing, the majority of the funds are for the contracts with Douglas Aircraft. Table 1 shows obligations and expenditures related to the principal contracts. Appendix I to this statement provides a detailed list of progress payments (expenditures) for these contracts.

Table 1: Obligations and expenditures on major Douglas Aircraft C-17 contracts (as of October 1991)

Contract	Obligations	Expenditures
	(Dollars in billions)	
Development contract		
Research & Development	4.65	4.29
Procurement (Lot I&II)	1.88	1.24
Subtotal	6.54	5.53
Production contract		
Lot III	1.03	0.19
Lot IV (Long lead)	0.15	0.04
Subtotal	1.18	0.23
Total	7.72	5.75

Note: Totals may not add due to rounding.

Estimated Cost Overruns of C-17 Contract

In 1990, the C-17 Administrative Contracting Officer requested that Douglas Aircraft submit a revised estimate of the cost at completion (EAC) of the development contract. Although Douglas claimed that the contract would be completed within the ceiling price of $6.65 billion, the Administrative Contracting Officer estimated that the actual cost to complete would be about $7.1 billion. He was concerned because the EAC is used to determine progress payments. The estimate used to determine the level of progress payments has since increased to $7.3 billion. An EAC that exceeds the ceiling on the contract results in a reduction in progress payments. That is, the amount of the progress payment is reduced to reflect a portion of the expected loss--the higher the EAC, the greater the reduction.

The Administrative Contracting Officer and the C-17 System Program Office currently estimate the development contract EAC at $7.3 billion. There are however other estimates. Douglas estimates the EAC to be about $7.1 billion; DCAA recently projected an EAC of

$7.5 billion; and the Office of the Under Secretary of Defense for Acquisition has estimated $8.0 billion but has said the cost could range as high as $9.2 billion.

The different EACs occur because of the methodology involved and the viewpoint of the group making the estimate. The EACs developed by the company, the System Program Office, and the Administrative Contracting Officer are based on the amount of work left to be completed and the cost to perform that work. Differences can be explained by the degree of optimism on the part of the estimator as to the expected improvement in cost savings and productivity. The estimate by the Office of the Under Secretary of Defense for Acquisition is made using a mathematical model which relies on historical program data to project an estimate and then adjusts the estimate based on the analyst's experience with other weapon system development programs.

Other Sources of Funds

The Air Force also awarded a contract to McDonnell Douglas in 1988 for a C-17 aircrew training system. This contract provides simulation hardware, software, testing, spares, support equipment, and other materials and services to train squadrons to fly the C-17. As of September 1991, $102.7 million had been obligated and $42.2 million expended on this contract. The cost of the contract is currently expected to increase to $382.8 million through 1997.

Another contract awarded in 1988 calls for Douglas to provide the necessary initial provisioning of spare parts for the C-17. That contract is valued at about $71 million, of which about $3 million had been expended as of September 30, 1991.

C-17 Program Continues to Face Problems

In August 1989, we reported that the C-17 program faced significant schedule, cost, and performance challenges. At that time, Douglas had missed major assembly milestones because of late engineering drawings and late delivery of tools and parts. Also, problems in the development and testing of the aircraft avionics and Douglas' management of subcontractors were contributing to cost, schedule, and performance problems.

As a result of these problems, the milestone of completing assembly of the first aircraft, scheduled for January 1990, had slipped to December 1990. Further, the first flight was rescheduled from August 1990 to June 1991, and first flight of a production aircraft to September 1991. On September 25, 1990, the Air Force and Douglas Aircraft signed a contract modification that in essence recognized the slipped schedule. However, first flight of the test aircraft did not occur until September 15, 1991.

The Air Force and Douglas Aircraft agreed to a new delivery schedule for Lots I and II of the development contract. That schedule became effective in July 1991 when the Lot III contract was awarded. However, it does not appear that this schedule will be met, and the first flight of a production aircraft, scheduled for December 1991 under the new agreement, may not occur until about March 1992.

To overcome its problems in meeting schedules, Douglas must improve production efficiency and quality and complete avionics software development. Currently, the work performed continues to be less than the work scheduled, and the actual cost of the work performed is greater than planned. Major problems include the amount of out-of-position work, which creates production inefficiencies, and the amount of rework and repair, which indicates quality problems.

Another major problem area has been avionics software development. Originally, software on the first test aircraft was intended to support all avionic functions. However, because of software development problems and schedule delays, in late 1988, the Air Force reduced software requirements for the test aircraft. Douglas delivered the test aircraft with only enough software to safely fly the airplane during the early phases of the flight test program. The Air Force waived capability shortfalls in 23 avionics and flight control subsystems on this aircraft. Douglas anticipates that most of the missing software will be added on the first production aircraft. More details on C-17 software development problems are included in our statement submitted for the record by the GAO Director for Defense and Security Information Systems. As you are aware that work was being done at the request of this Subcommittee.

In March 1991, the Air Force System Program Office sent a letter to Douglas noting that there were 75 C-17 contract deficiencies. Currently eleven of the deficiencies have been resolved. Another 37 deficiencies involve waivers, deviations, or shortages that must still be resolved, and 27 deficiencies require additional test data or analysis before resolution can be achieved.

At the direction of Douglas Aircraft and McDonnell Douglas management, an internal team independent of Douglas Aircraft reviewed the C-17 program and, in June 1991, made 23 recommendations for needed improvements. These included increasing the emphasis on quality and reducing out-of-position work. In our opinion, the degree of improvement that can be expected on the C-17 program is directly tied to the success Douglas achieves in implementing those recommendations.

Air Force Agrees to Reduced Specifications

In our 1989 report and again in testimony in June 1990, we reported on excess weight problems that could reduce the C-17 performance.

At the time of our 1989 report, the C-17 weight was projected at about 269,300 pounds. At that weight, the plane would still likely meet its original performance specifications. However, Air Force analyses indicated that further weight growth would impact this ability. In 1989, the Military Airlift Command determined that the C-17 performance specifications included in the development contract exceeded the Command's threshold requirements. In April 1991, the projected weight of the C-17 increased to 273,903 pounds. At that weight the plane would have fallen short of meeting the original specifications. During this time, as part of an overall negotiation on modifying the development contract, the Air Force and Douglas agreed to reduce the contract performance specifications to match those of the Command's threshold requirements. The changes were incorporated in July 1991, when the Lot III contract was awarded. They include:

-- The maximum deliverable payload was reduced from 167,027 pounds to 160,000 pounds, at an unrefueled range of 2,400 nautical miles.

-- For a heavy logistics mission, the deliverable payload was reduced from 153,297 pounds to 150,000 pounds, at an unrefueled range of 2,700 nautical miles, and the deliverable payload was reduced from 134,562 pounds to 130,000 pounds, at an unrefueled range of 3,200 nautical miles.

-- For an intertheater logistics mission, the deliverable payload was reduced from 124,039 pounds to 120,000 pounds, at an unrefueled range of 2,800 nautical miles.

-- For a high performance logistics mission, the deliverable payload was reduced from 81,140 pounds to 75,000 pounds, at an unrefueled radius of 500 nautical miles.

-- The ferry range capability (distance without a cargo load) has been reduced from 4,915 nautical miles to 4,600 nautical miles unrefueled.

Currently, Douglas projects that the C-17 will weigh 273,918 pounds. At this weight the aircraft may not meet even the reduced specifications.

In the same contract modification, the Lot I and II aircraft delivery schedules were revised to reflect program schedule slips. The modification included consideration to the government for these changes. Air Force officials have stated that this consideration could reach $15.5 million including (1) a $4 million reduction in the contract ceiling, (2) a $4 million reduction in the ceiling for the refurbishment option (Douglas is required to refurbish the first four production aircraft after their use in flight testing and prior to their being put into use by the Military Airlift Command), (3) about $2.5 million from deleting award fee provisions

from the contract, and (4) up to $5 million from making the contractor responsible for certain foreign object damage. However, because of the number of issues being negotiated concurrently, it is not possible to clearly link these considerations to the reduced specifications.

MCDONNELL DOUGLAS'S REQUEST FOR DOD'S FINANCIAL ASSISTANCE

In January 1991, following cancellation of the A-12, the McDonnell Douglas Corporation, through its Chief Executive Officer, requested that DOD establish a $1 billion advance payment pool--in effect a loan--that the Corporation could draw on to help it through a predicted cash shortfall during 1991. To evaluate McDonnell Douglas' need for financial assistance, DOD requested information concerning the company's overall financial status, including future liabilities, credit, and cash flow. DOD was concerned about the Corporation's financial assumptions regarding the C-17 program, and on January 31, 1991, the Director of Defense Procurement provided McDonnell Douglas with a list of seven assumptions related to the C-17 to use in revising its overall cash requirements forecast. A list of the assumptions and information about the status of the assumptions are provided in Appendixes II and III, respectively.

Impact of the Assumptions on Projected Cash Shortfall

The first three assumptions dealt with the EAC of the development contract, the number of aircraft that would be delivered in 1991, and the amount of cash that McDonnell Douglas could expect to receive from claims under the contract in 1991 and 1992. These three assumptions had the greatest negative impact on the company's cash flow analysis. The assumption of a higher EAC for the C-17 was the major factor accounting for the overall decrease in McDonnell Douglas' cash flow projection in the first 6 months of 1991. For the second half of 1991, eliminating potential C-17 claims of $43 million was the principal negative cash flow projection factor.

The other four assumptions dealt with the timing and amount of funding actions in support of long lead procurements for the Lot III and IV production contracts. They did not affect the cash flow forecast. Cash flow would have been affected only if there were insufficient government funds to pay valid billings under the contracts. According to DOD, this information was provided to clarify the government's intent. Douglas had assumed that the money would be on contract when it was ready to bill. DOD's information confirmed those assumptions.

DOD directives and Air Force regulations provide that long lead procurements are for components, parts, and materials that require significantly longer leadtimes than other components, parts and materials of the same end item. Perhaps more importantly, the term

also refers to effort that must be funded in an advance procurement timeframe to maintain a planned production schedule. Each budget request to fund a long lead procurement should at least equal the amount of termination liability incurred under the long lead contract. Termination liability under a long lead contract includes the maximum value of outlays that could be incurred for work accomplished by the end of the budget year plus the maximum cost to the government associated with termination of the contract at the end of the budget year.

A McDonnell Douglas financial forecast, reflecting changes based on C-17 program assumptions, was submitted to DOD on February 12, 1991. However, rather than using a $7.1 billion EAC, the Corporation, at DOD's request, used an EAC of $7.4 billion. For the C-17 program, a cash shortfall of $303 million was projected by June 1991. The difference between the February 12 forecast of $303 million and the previous McDonnell Douglas forecast of $90 million submitted January 28, 1991, was a $213 million shortfall on the C-17. This increased the overall projection of McDonnell Douglas cash needs for the same period by $213 million, from $716 million to $929 million.

At the request of the Director of Defense Procurement, DCAA audited McDonnell Douglas' cash flow projections submitted on February 12, 1991. As a result of the DCAA findings, the C-17 negative forecast was changed from $303 million to $419 million because the DCAA believed that C-17 progress payments should be at a 96 percent rate rather than at the 99 percent rate that the company had assumed. This raised the overall projection of cash needs to $1.08 billion. Appendix IV summarizes the McDonnell Douglas cash flow forecast submissions.

While the McDonnell Douglas Corporation continues to face serious challenges, its overall financial position seems to have improved since February 1991. Since that time and without the advance payment pool, the company has paid off about $300 million in debt and negotiated a new line of credit to replace one that is scheduled to expire in December 1991. During that same time, the company has delayed about $350 million in payments to its subcontractors, delivered more commercial and fighter aircraft than expected, and had lower than forecasted commercial aircraft expenses.

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Mr. Chairman, that completes my statement. I would be happy to answer any questions you may have.

APPENDIX I

PROGRESS PAYMENTS FOR C-17 CONTRACTS WITH MCDONNELL DOUGLAS

Development Contract Including Lot I and Lot II

Date Authorized	Payment Authorized (-Dollars	Amount Requested in millions-)
Prior total	3,921.8	
June 1990	205.0	205.0
July 1990	217.6	231.6
October 1990	81.2	316.8
November 1990	59.2	386.5
November 1990	123.9	459.5
December 1990	143.6	489.5
January 1991	75.3	362.7
February 1991	66.5	301.5
March 1991	116.7	364.3
April 1991	138.7	391.5
May 1991	75.6	123.1
June 1991	149.3	197.9
June 1991	(24.7)	
July 1991	11.7	204.1
August 1991	98.2	293.4
September 1991	84.5	281.5
October 1991	(18.7)	179.9
Total to date	5,525.2	

Lot III Production Contract

Date Authorized	Payment Authorized (-Dollars	Amount Requested in millions-)
Prior total	18.3	
June 1990	0.9	0.9
July 1990	7.2	7.2
August 1990	3.8	3.8
September 1990	6.2	6.2
October 1990	3.6	3.6
November 1990	20.8	20.8
December 1990	20.7	20.7
January 1991	8.8	10.8

February 1991	3.9	5.9
March 1991	22.8	24.0
May 1991	10.0	12.3
June 1991	9.6	12.8
July 1991	20.9	24.1
August 1991	1.0	4.1
September 1991	13.1	24.0
October 1991	16.4	34.3
Total to date	187.7	

Lot IV Long Lead

Date Authorized	Payment Authorized (-Dollars	Amount Requested in millions-)
Prior total	1.2	
June 1990	4.6	4.6
July 1990	1.7	1.7
August 1990	0.7	0.7
September 1990	1.5	1.5
October 1990	1.4	1.4
February 1991	2.4	2.4
March 1991	2.1	2.1
April 1991	13.2	13.2
May 1991	1.4	1.4
June 1991	3.1	3.1
July 1991	5.4	5.4
August 1991	(1.9)	(1.9)
September 1991	2.3	2.3
October 1991	1.5	1.5
Total to date	40.6	

Note: Totals may not add due to rounding.

Note: Dates shown are the month in which the payment was approved by the administrative contracting officer.

Note: The June 1991 negative value for the Development/Lot I/Lot II contract resulted from an error on the progress payment request, resolved with a credit memo for $24.7 million.

Note: The October 1991 negative value for the Development/Lot I/Lot II contract resulted from application of a new progress payment rate of 97 percent versus 99 percent.

DOD C-17 ASSUMPTIONS

ASSUMPTIONS FOR PRO-FORMA FINANCIAL FORECAST:

1. Use $7.115 billion for the EAC for FSED, Lot I, and Lot II.

2. Assume two aircraft will be delivered during CFY91:
   - T1 in June
   - P2 in December

3. Assume no equitable adjustments for claims will occur in CFY91. Do not assume any adjustment in the outyears for uncertified claims. Do not include in the outyears an adjustment above your legal counsel's best estimate of recovery on previously certified claims.

4. Assume Lot III negotiations will be completed by the end of February 1991.

   - Upon completion of Lot III negotiations, assume an additional $338 million will be added to the existing Lot III Long Lead document to cover termination liability incurred until the signed contract is executed.

   - Upon completion of Lot III negotiations, assume an additional $52 million will be added to the existing Lot IV Long Lead document.

5. In May 1991, when the Lot III contract is executed, assume the remaining amount between the negotiated target price and what has been previously obligated as long lead will be added.

6. Assume that on June 1, 1991, an additional $200 million will be obligated against the FY91 funding profile for R&D. As a result of this obligation of an additional $200 million in FY91, the FY92 funding requirement will be reduced by an equal amount.

7. In June 1991, assume an additional $180 million will be obligated to the Lot IV Long Lead document.

STATUS OF THE ASSUMPTIONS

The first assumption was that the EAC for the C-17 development contract should be $7.115 billion. This EAC was being used by the Administrative Contracting Officer at that time for determining progress payments, and has since increased to $7.3 billion. Douglas at that time was reporting an EAC of $6.5 billion, and now reports an EAC of $7.1 billion. The use of a higher EAC results in projecting lower progress payments.

The second assumption was that the company would deliver two aircraft during 1991, the test aircraft in June and the first production aircraft in December. In its initial cash flow analysis in January, Douglas assumed that it could deliver three aircraft in 1991. However, the delivery schedule being negotiated at that time, and since approved, called for the test aircraft to be delivered in June and the first production aircraft to be delivered in December. The test aircraft was delivered on September 15, 1991, and DOD now expects the first production aircraft to be delivered in the second quarter of 1992. Delivery of aircraft result in cash payments to the company.

The third assumption directed the company to assume no adjustments from claims in 1991, no adjustments in subsequent years from uncertified claims, and no adjustments in future years that exceeded the best estimate by the company's legal counsel of recovery on previously certified claims. In its January cash flow analysis, McDonnell Douglas included recovery of claims valued at $43 million in the second half of 1991 and $83 million in the second half of 1992. Douglas has filed seven certified claims totaling $108 million during 1990 and 1991, all of which have been denied by the contracting office. This denial is subject to appeal. Corporate records show that the company may make additional claims bringing the total value of 1990 and 1991 claims to $369 million. Of this, McDonnell Douglas has reported claims recovery of $208 million in its financial reports. Because of the length of time it takes the government to review and rule on contractor claims, DOD has stated that it is unlikely that any of these claims will improve cash flow in 1991 or 1992.

The fourth assumption was that Lot III negotiations would be completed by the end of February 1991. At that time, McDonnell Douglas should assume that (1) an additional $338 million would be provided in long lead funding to cover termination liability incurred until the Lot III contract was awarded, and (2) an additional $52 million would be added to Lot IV long lead funding. The fifth assumption stated that in May 1991, when the Lot III contract was awarded, the remaining amount between the negotiated

target price and what had been previously obligated as long lead funding would be added to the contract.

DOD directives and Air Force regulations provide that long lead procurements are for components, parts, and materials that require significantly longer leadtimes than other components, parts and materials of the same end item. The term also refers to effort that must be funded in an advance procurement timeframe to maintain a planned production schedule. Each budget request to fund a long lead procurement should at least equal the amount of termination liability incurred under the long lead contract. Termination liability under a long lead contract includes the maximum value of outlays that could be incurred for work accomplished by the end of the budget year plus the maximum cost to the government associated with termination of the contract at the end of the budget year.

Assumption four related to the date on which additional money would become available to cover termination liability under the Lot III long lead provisions of the development contract. Prior to February 1990, the Air Force had obligated $99.1 in advance procurement funding for fiscal year 1989 to cover its termination liability for the Lot III long lead procurement. In November 1990, at the request of the Air Force, Douglas submitted a termination liability estimate that included its actual and anticipated expenditures through April 1991, plus the amount of money it would owe its subcontractors through that date. Douglas estimated that an additional $338 million would be needed to cover termination liability for the Lot III long lead effort through April 1991, and requested that this additional funding be obligated as soon as possible, but no later than December 15, 1990. This obligation had not been made as of January 31, 1991, and assumption four provided guidance to the company on when it could expect the funds to be obligated.

After the March 3, 1991, completion of Lot III negotiations, a total of $338 million was obligated for Lot III long lead funding; $22 million on March 18, 1991 to cover billings for March, and $316 million on March 29, 1991 to cover termination liability through contract award. This amount was in addition to the previously obligated $99.1 million. On July 30, 1991, the award date of the Lot III contract, the difference between the target price ($1.026 billion) and the amount previously obligated ($437 million), or an additional $589.0 million, was obligated. This was done because procurement contracts are required to be fully funded at time of award. By that date, $157 million including the initial $99.1 million had been paid to Douglas for Lot III.

Also, after the completion of Lot III negotiations, additional long lead funding was obligated for Lot IV: $18.5 million in April 1991, and $37.5 million in July 1991. This amount was in addition to the $97.5 million obligated for Lot IV long lead in January 1990. Approximately $40.6 million of the $153.5 million obligated for long lead funding on Lot IV has been paid to Douglas as of October 1991.

The use of long lead/termination liability funding prior to contract award is common in DOD, especially for aircraft programs, and frequently constitutes a substantial percentage of the contract price. For the C-17, 43 percent of the Lot III target price was obligated prior to contract award, a percentage that DOD officials consider to be high, due to the delay in completing contract negotiations but which is within the limits of DOD guidance. The initial $99.1 million obligated to fund the Lot III long lead effort was provided by Congress in fiscal year 1989 to fund C-17 advance procurement, but the March obligations (totaling $338 million) were funded with 1990 procurement funds.

The sixth assumption stated that on June 1, 1991, an additional $200 million would be obligated against the fiscal year 1991 funding profile for research and development and the fiscal year 1992 funding requirement would be reduced by an equal amount. The seventh assumption stated that in June 1991, an additional $180 million would be obligated for Lot IV long lead.

These two assumptions are related to a reprogramming action that occurred earlier this year. DOD requested that the appropriate congressional committees approve the transfer of $200 million intended for C-17 procurement, from the 1991 Air Force aircraft procurement account to the 1991 Air Force research and development account for expenditure on the C-17 program. In addition, DOD requested permission to reprogram within the 1991 Air Force aircraft procurement account $180 million from C-17 procurement to C-17 advance procurement for Lot IV. The committees did not approve the $180 million reprogramming for advanced procurement.

DOD's rational for the sixth assumption was that Douglas was spending more money on research and development in 1991 than planned. The Air Force proposed the transfer of 1991 procurement money to 1991 research and development money with an offsetting transfer of 1992 research and development money to 1992 procurement money. The transfer was approved on October 4, 1991.

The rational for the seventh assumption was that additional Lot IV long lead funding would be needed to cover Douglas' termination liability through the end of 1991. The Air Force later realized

that no additional funds were needed for Lot IV long lead (other than the $153.5 million that had already been obligated). DOD and Air Force officials told us they plan to obligate Lot IV long lead funds in the amount of $80 million upon completion of the Lot IV negotiations, projected for the end of December 1991, and $100 million through the Lot IV contract award date, projected for the end of March 1992, although the source of these funds is not known at this time.

SUMMARY OF MCDONNELL DOUGLAS CASH FLOW FORECAST SUBMISSIONS

Date	C-17 Cash Shortfall-January to June 1991 (millions)	McDonnell Douglas Overall Cash Shortfall-January to June 1991 (millions)	C-17 EAC (billions)
January 28, 1991	$ 90	$ 716	$6.8
February 12, 1991	303	929	7.4
After DCAA revisions (February 22, 1991)	419	1,080	7.4

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