



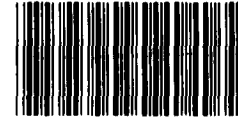
UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548

114466

MISSION ANALYSIS AND  
SYSTEMS ACQUISITION DIVISION

FEBRUARY 27, 1981

B-200783



114466

The Honorable Caspar W. Weinberger  
The Secretary of Defense

Attention: Assistant for Audit Reports

Dear Mr. Secretary:

Subject: [U.S. Participation in the United Kingdom's  
Development of JP-233--A Costly Deviation  
from Acquisition Policy] (MASAD-81-17)

We have reviewed the JP-233 Low-Altitude Airfield Attack System as part of our annual review of selected major weapon systems. Our objective was to examine U.S. participation in this United Kingdom development effort including how well the Department of Defense (DOD) had defined its requirements and assessed alternative solutions. We obtained information from records and officials at the joint program office in London comprised of staff representing United Kingdom and U.S. personnel, at Air Force Headquarters and the Office of the Secretary of Defense, the Air Force Tactical Air Command (TAC), and the Armament Division of Air Force Systems Command. We did not evaluate United Kingdom program management or mission requirements.

At various times during our review, we briefed the staffs of the House and Senate Appropriations and Armed Services Committees. In December 1980, near the completion of our review, the Congress denied the \$56.5 million the Air Force had requested for fiscal year 1981. Although the United States is no longer a participant, we want to bring several issues to your attention that deal with the overall acquisition strategy followed on this foreign developed system. We believe lessons learned should have application to future acquisitions of this kind.

(951559)

015694

DOD participation in the JP-233 development did not follow prescribed acquisition strategy which requires initial project definition and continued formal oversight at key decision points. As a result, the Air Force committed more and more resources without fully defining mission needs or formally evaluating alternative solutions. At the time of congressional action in December 1980, the Air Force had spent about \$109 million and is now negotiating termination costs that may exceed \$25 million.

#### SYSTEM DESCRIPTION AND HISTORY

JP-233 was intended to reduce the sortie generation capability of Warsaw Pact Air Forces by damaging runways and other operating surfaces and impeding efforts to repair them. The United Kingdom began feasibility studies in 1971 and moved into the project definition phase in April 1975. The U.S. participation began in August 1976 under the foreign weapons evaluation program. Joint definition efforts continued until June 30, 1977, when the joint validation phase began.

The United Kingdom wanted to begin full-scale development in November 1977; however, U.S. Air Force representatives in the joint program office believed some additional project definition work was necessary. As a compromise, and to keep the program going, the United States agreed to a "qualified" full-scale development phase that lasted until January 1, 1979, when the Air Force formally committed the United States to funding half the joint program through the end of development. This move seemed to be premature based on information available at the time.

#### INCOMPLETE MISSION ANALYSIS

Though DOD did not prepare a mission area analysis before joining the JP-233 effort, two technical reports on airfield attack, based on work done by the Air Force Armament Division at Eglin Air Force Base, Florida, were available at the time. Because of high aircraft attrition rates, these reports recommended airfield attack weapons that permit delivery aircraft to standoff and not fly directly over enemy airfields.

TAC also analyzed the airfield attack mission area, but its draft analysis did not appear until June 1979, more than 1-1/2 years after the Air Force began qualified full-scale development with the United Kingdom, and 5 months after the United States was committed by the Air Force to paying half of the joint development cost. As of February 2, 1981,

TAC had not completed the analysis and was unable to estimate when it would be completed.

Various other studies dealing with airfield attack and airfield attack weapons have appeared since the United States joined the JP-233 development effort. These studies were not conclusive because DOD had not sufficiently defined the mission and because the studies did not always agree on matters such as attrition, system capabilities, and costs. But, the studies did establish that several airfield attack systems in production or various stages of development offer alternatives. The studies also indicated that limited U.S. aircraft allocations for airfield attack and high expected attrition seriously limit the effectiveness of aircraft-delivered weapons, particularly those without standoff capability.

CONTINUED FUNDING DESPITE COST  
AND TECHNICAL UNCERTAINTIES

There were also cost and technical indicators that the Air Force decision to commit to JP-233 was premature. For example, Air Force budget estimates were not refined to adequately project development and procurement costs. U.S. budget requests increased 155 percent from fiscal years 1978 through 1981 for development costs alone, primarily because of inadequate provisions for United Kingdom inflation and fluctuations in the dollar/pound exchange rate. These same factors caused estimated U.S. procurement costs during this period to increase from \$522 million to almost \$3 billion. Without including inflation and exchange rate fluctuations, the United Kingdom contractor's development cost estimate increased almost 22 percent from January 1979 to July 1980.

As for technical status, during our visit to the London program office in October 1980, we found that all components of the system had uncertainties that would have to be resolved before total performance could be demonstrated. While most components appeared to be within the state of the art, technology supporting the cratering submunition had yet to be validated through actual low-level aircraft delivery. Air trials to demonstrate live emplacement of a single cratering submunition were not scheduled until June 1981--about 3-1/2 years after the start of full-scale development.

USUAL HIGH-LEVEL REVIEW  
NOT PROVIDED

In addition to the above factors, the JP-233 system was not designated as a major acquisition. Instructions from the

Office of Management and Budget and DOD suggest that such systems be designated major based on (1) the criticalness of the mission, (2) the amount of resources required, and (3) the need for special management attention. The purpose of such a designation is to better assure that a system meeting these criteria will get the high-level management attention it deserves. We believe JP-233 met most, if not all, of the suggested criteria. For example, even at the outset, U.S. costs of \$85.8 million for development and \$533 million for production exceeded the suggested \$75 million and \$300 million cost criteria. We also believe that as an international project requiring formal commitments to another country that could not be unilaterally withdrawn without some difficulty, JP-233 appeared to deserve special management attention.

By not being designated as a major system, JP-233 was not given the usual high-level review, coordination, and visibility at key decision points. For example, JP-233 transitioned from project definition through validation and into full-scale development, and could have gone into production without formal justification before the Defense Systems Acquisition Review Council (DSARC). A principal function of a formal DSARC review is to question proposed commitments at key points in the development period. The DSARC reviews would have raised questions about a system which did not have a completed mission analysis, requirements documents, and evidence that alternatives had been considered and that technology supporting the chosen alternative had been validated through realistic demonstrations. Also, periodic reporting requirements for major systems would have increased JP-233's visibility and coordination within the Congress.

#### CONCLUSIONS AND RECOMMENDATIONS

DOD acquisition policies require thorough analyses of missions, needs, costs, and alternatives before committing substantial resources. Further, such a commitment requires formal, high-level, and ongoing reviews that consider new information and changing circumstances at key decision points to assure the reasonableness of continuing a program. The Air Force did not follow this approach in committing the United States to the JP-233 program. We believe initial project definition and continued oversight are crucially important, particularly for acquisitions requiring international commitments, to reduce the risk of abrupt U.S. terminations and the strained international relationships that could result.

DOD committed the United States to paying half the development cost of JP-233 without formal analyses of mission

requirements, current capabilities, needs, and alternative solutions. Therefore, the United States was formally committed to developing a weapon with an ally without assurance that it would either accomplish the U.S. mission or that it was the best alternative. Furthermore, even though it met several of the specific criteria, DOD did not designate the system as "major," and thus eliminated the usual formal, high-level review at key decision points in the acquisition cycle.

From August 1976 to the official U.S. notice of intent to terminate in December 1980, the Air Force spent almost \$109 million, including \$12.1 million as the U.S. share of costs the United Kingdom incurred before the United States joined the development. In addition, U.S. termination costs now being negotiated may exceed \$25 million.

We have no specific recommendations to make on the JP-233 because it has been terminated. However, there are some lessons to be learned from the way the program was managed which may have application to future acquisitions. Therefore, we recommend that you should:

- >Assure that mission requirements, capabilities, and needs are well defined before committing significant resources for either U.S. or allied weapons development or procurement. Such assurance is particularly critical before making international commitments from which the United States cannot unilaterally withdraw without some difficulty.
- Direct the Secretary of the Air Force to specifically define the requirements for the airfield attack mission to provide a basis for identifying and comparing alternative weapons and delivery modes. These comparisons should specifically take into account (1) delivery aircraft sortie availability and attrition for weapons that require deep penetration of enemy territory and (2) the cost and benefits of using pretargeted, surface-to-surface missiles, and other standoff weapons.
- Require high-level reviews for any costly weapon. These reviews should assure that the chosen system (1) has demonstrated performance through realistic operational tests, (2) is the best alternative among the candidates, and (3) is capable of performing its mission, either alone or in concert with other planned systems.
- Limit funding requests for airfield attack weapons to only those levels needed to validate the various

technologies as a basis for system comparisons and that the restriction apply until the Secretary of the Air Force completes the mission analysis and you certify the mission contribution of proposed weapon solutions.

COMMENTS BY DOD PROGRAM OFFICIALS AND  
THE UNITED KINGDOM

We did not request official DOD comments on this report. Instead, a draft of this report was discussed with high-level DOD officials associated with management of the program to assure that the report is accurate and complete. They had no specific disagreement with our conclusions and recommendations.

Written comments were provided by the United Kingdom and are enclosed at their request. The United Kingdom expressed concern that this report does not address our broader original objective of assessing cost, schedule, technical status, and logistics. While our original plan was to report on these broader areas, our report was reprogramed when the Congress terminated U.S. funding. The United Kingdom also expressed concern that our report implied that they rushed the Air Force to collaboration. This implication was not intended. The report cites the events that took place during the 3-year period preceding the formal U.S. commitment in January 1979. The United Kingdom further said that the Air Force does not consider the competing systems as viable alternatives to JP-233. The Air Force is still testing and evaluating the alternative systems and has not made a decision on their viability. The United Kingdom agreed that most of the cost increase in Air Force budget estimates were caused by inadequate allowance for inflation in exchange rate fluctuation. We also clarified that the 22-percent increase was for development rather than procurement cost. The United Kingdom also expressed concern that our report implied that high-level U.S. officials did not devote management attention to that project. They specifically pointed out certain briefing of top-level officials. Our concern is still that this was a system requiring rigorous formal review processes because of its costs and sensitivity but which did not receive these reviews.

- - - -

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and

the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report. We would appreciate receiving a copy of your statement when it is provided to the congressional committees.

Copies of this letter are being sent to the Director, Office of Management and Budget; the chairmen of the House and Senate Committees on Armed Services and Appropriations, House Committee on Government Operations, and Senate Committee on Governmental Affairs; and the Secretaries of the Army, Navy, and Air Force.

Sincerely yours,

A handwritten signature in black ink, appearing to read "W. H. Sheley, Jr.", written in a cursive style.

W. H. Sheley, Jr.  
Director


**BRITISH DEFENCE STAFF WASHINGTON**

British Embassy Washington DC 20008

Telephone 462-1340

Mr. M. Casterline,  
 GAO Systems Acquisition Division,  
 Room 6478, GAO Building,  
 441 G Street NW,  
 Washington, DC 20548.

Your reference

Our reference CWL 36/1/1

Date 18 February 1981

GAO DRAFT LETTER REPORT - JP 233

The following are the UK comments on the above draft letter report, adopting the revised paragraphing shown in the draft.

Para. 1 - Objective

1. The GAO visited the UK from 29 September 1980 to 17 October 1980 during which time they had access to the records of the JP 233 Joint Management Team, to the team members and to MOD(PE) Finance and Contracts Staff. They said their objective was to assess the status of the project in the four areas of cost, schedule, technical progress and logistics. The overall objective of the GAO activities as reported to us does not accord with the very restrictive objective stated in paragraph 1 and to which this quote official unquote letter report is addressed.
2. The GAO gathered a large amount of information in furtherance of their stated objective. They discussed their findings with UK officials in informal briefings before they left, and as a result, the UK had reservations on some of the GAO's findings and their interpretation of them.
3. The UK principal concern therefore, is that what the GAO say in their Draft Report that they set out to do, is not what they actually did. Furthermore, the UK is concerned that what the GAO did study and the verbal briefings that they gave to Congressional staffers is not included in this official letter report and therefore not open to corrections as to matters of fact.

Paras. 3, 4, 5 and 7

4. There is something of an insinuation here that the USAF were led to commit quote more and more resources unquote. In fact our normal Project Definition phase was extended for the USAF's benefit and JV was specifically introduced to meet their requirements. Meanwhile the programme was being carried on largely at UK expense and risk. From mid 1975, when the collaborative discussions started and a mass of information on the project started to flow to the USAF, and June 1978 the US contributed only \$3.7M to the programme, without any guarantee that they would eventually join the programme. It was not until January 1979 that they accepted full financial responsibility as an equal partner. They were certainly not rushed into collaboration. The JMT was not formed until mid 1978.

/.....





- 2 -

Para. 8

5. The alleged competing systems are not considered by UK or USAF to be viable alternatives to JP 233 because of their inferior overall airfield closure both in terms of cratering performance and, with the exception of STREBO, absence of area denial munitions.

Para. 9

6. (a) Both these figures were US internal estimates made without consultation with the UK. The larger figure was based on an assumed dollar exchange rate and assumed extrapolated inflation in the UK over the whole period of production deliveries for the US. Up to the point at which the US notified withdrawal the UPC had not sensibly changed at constant pay and price levels and this information was included in UK briefings to senior DOD officials in Washington in May 1980, to General Slay and Dr. Hans Mark in London in September 1980 and to the GAO in October 1980.

(b) The figure of 22% for the increase in the contractors estimate from Jan.79 to Jul.80 applies to development costs and not procurement costs as could be inferred from the previous sentence. As a consequence of the increase in the contractors estimates in July 1980 a cost saving exercise was mounted. The GAO were notified of this but before the UK/US consultation procedures could be completed in accordance with the provisions of the MOU, the project was zero funded by Congress though at that time a reduced programme had been in operation for some time. The reduced programme cost was apparently not taken into account in Congress' decision.

Para. 10

7. The air drop had been scheduled for June 1981 some 3½ years ago even before the US joined the development programme. It is better than on schedule and the essential preliminaries to this of fully live ground firings and flight release of inert stores have now taken place successfully.

Para. 11

8. Although the GAO claim that the project did not receive high level management attention the UK considers that the presentations given to senior US officials from time to time including Secretary for the Air Force and periodic exchanges between CDP and Dr. Perry provided ample opportunity for this attention to be given.

Security Classification

9. The UK does not consider that any part of the report needs to be classified.

*St. Wilkinson*

(for) P. D. Stokes, Wg. Cdr. (RAF)  
GWL/DES

Copy - Mr. M. Chen, OUSDRE)  
Rm. 3E-1049, Pentagon.