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BY THE U.S. GENERAL ACCOUNTING OFFICE

Report To The Chairman, Subcommittee On Defense, Committee On Appropriations House Of Representatives

Navy's F/A-18 Program Faces Budget Concerns And Performance Limitations As Aircraft Enter The Fleet

As the new dual-purpose F/A-18 naval strike fighter begins to enter the fleet, it faces controversies over budgeting, testing, and fleet introduction.

To cover a $310 million increase in the cost of building the F/A-18 from 1979 to 1982, the Navy employed a series of budgetary and funding practices which caused congressional concern regarding oversight and the use of appropriated funds as the Congress intended.

DOD approved full production of the F/A-18 following an operational test and evaluation by the Navy's independent testing organization. Although the Navy believes it has corrected most of the identified deficiencies, range may still be a problem.

As the F/A-18 enters fleet service, the unavailability of essential equipment and continued delays in developing an effective logistics support capability could limit the F/A-18's operational effectiveness and supportability.

GAO/MASAD-83-28
JUNE 10, 1983

025887

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

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

B-196883

The Honorable Joseph P. Addabbo
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

Dear Mr. Chairman:

This report discusses the Navy's F/A-18 strike-fighter program and three issues which it is facing: F/A-18 funding practices, performance problems, and fleet introduction.

We made this review at your request to determine:

--The amount of F/A-18 support funds used to finance budget shortfalls and overruns and the operational effect of this financing practice on the Navy's ability to adequately support the aircraft.

--The operational test and evaluation results and the effect of performance problems on the aircraft's operational effectiveness.

As arranged with your office, we are sending copies of this report to the Chairmen, House Committees on Appropriations, Armed Services, Government Operations, and Budget; the Chairmen, Senate Committees on Appropriations, Armed Services, Governmental Affairs, and Budget; and the Secretaries of Defense and the Navy. We will make copies available to other interested parties upon request.

Sincerely yours,

for Frank C. Conahan
Director

REPORT TO THE CHAIRMAN,
SUBCOMMITTEE ON DEFENSE,
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

NAVY'S F/A-18 PROGRAM FACES BUDGET CONCERNS AND PERFORMANCE LIMITATIONS AS AIRCRAFT ENTER THE FLEET

D I G E S T

The F/A-18 naval strike fighter is a twin-engine, single pilot, aircraft carrier-capable aircraft designed to replace the F-4 and the A-7, and perform both fighter and attack missions for the Navy and the Marine Corps. The F/A-18 entered production in 1979. In 1981 the Secretary of Defense approved full production of the aircraft to fulfill the fighter mission requirements. On March 17, 1983, the Secretary approved full production for the Navy's attack mission requirements as well. The F/A-18 entered fleet service in 1983 as the first three fighter squadrons based at the El Toro Marine Corps Air Station, Santa Ana, California, began receiving their aircraft.

GAO's review, made at the request of the Chairman, Subcommittee on Defense, House Committee on Appropriations, showed:

--The Navy employed a series of budgetary and funding practices to cover increases in the cost of building the F/A-18 which cause concern.

--The Navy believes the F/A-18's performance deficiencies have or will be resolved, but GAO believes range may still be a problem.

--The unavailability of essential equipment and delays in the Navy's logistics support program may limit the F/A-18's operational effectiveness as the aircraft enters fleet service.

F/A-18 PROGRAM FUNDING PRACTICES CAUSE CONCERN

Procuring a new modern weapon system entails substantial financial and technological risks. The Department of Defense must have a degree of flexibility in procuring these systems to minimize these risks and ensure sound acquisition management. However, this flexibility must be consistent with the Congress' oversight responsibilities and intent in appropriating public

Tear Sheet (GAO/MASAD-83-28)

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funds. The funding practices employed by the Navy to cover increases in the cost of building the F/A-18 have caused congressional concern regarding oversight and the use of appropriated funds as the Congress intended.

Between 1979 and 1982, the Congress appropriated $5.2 billion to build 157 F/A-18s and to buy the unique logistics support equipment needed to field the aircraft. During that time, the cost of building the aircraft exceeded the funds budgeted for this purpose by about $310 million. This was because of the negotiated F/A-18 contract prices from 1979 to 1982 having consistently exceeded what the Navy budgeted, and the prime contractor having projected overruns on the 1979, 1980, and 1981 contracts. To pay for most of this shortfall, the Navy used funds budgeted for F/A-18 logistics support, which supplied $161 million, and funds appropriated for other Navy aircraft programs which have or are projected to supply about $139 million more. As a result, executing the F/A-18 budget over the last 4 years has differed significantly from the program presented and justified to the Congress. This has led the House Appropriations Committee to require additional information from the Secretary of Defense before considering the F/A-18's fiscal year 1984 budget request. (See p. 5.)

The Navy has

--twice requested and received funds for the same support items,

--used the support portion of the budget to include unidentified management reserves,

--shifted the cost of some essential support items out of the F/A-18 program, and

--avoided obtaining the approval of congressional committees by reprogramming funds after they expired. (Unobligated funds from expired accounts are available for use by the Navy for 2 additional years.) (See pp. 8-14.)

On November 12, 1982, GAO provided much of the foregoing information to the staff of the Subcommittee on Defense, House Appropriations Committee. Similar information had been developed by the Committee's Surveys and Investigations

staff. Reacting to these disclosures, the Committee Chairman requested the Secretary of Defense to order a detailed financial audit of F/A-18 contract transactions and funding practices, and furnish this and certain legal opinions to the Committee. This review was made by the Defense Department's Inspector General and General Counsel. (See p. 14.)

GAO discussed its findings with the Inspector General's staff in January 1983. Their report cited similar budget and funding issues discussed in this report. In addition, the Inspector General's report discussed deferral of essential items on production aircraft, and weaknesses in the Navy's accounting and financial reporting systems. The Navy, while agreeing that the funding practices and contract restructuring did occur, took exception to many conclusions and recommendations in the Inspector General's report. For example, the Navy stated that essential items were not deferred to offset cost growth, but rather were deferred because of technical delays and other factors beyond their control. (See p. 14.)

DEPARTMENT OF DEFENSE APPROVES FULL F/A-18 PRODUCTION: RANGE STILL AN ISSUE

In March 1983, the Secretary of Defense approved full production of the F/A-18 to fulfill the Navy's light attack mission. This action followed an independent evaluation by the Navy's Operational Test and Evaluation Force made from May to October 1982. The independent testers noted several deficiencies, the range of the aircraft being the most serious. Based on several factors, the testers recommended that service-use-approval of the F/A-18 for the Navy's light attack mission not be granted. (See p. 16.)

The Navy believes that the problems identified in the operational test and evaluation have been or will be corrected. GAO believes, however, that range may still be a problem. The Deputy Secretary of Defense and the Navy stated that enhancing the F/A-18's operational range is required for long-range wartime attack interdiction missions and peacetime carrier training operations. The Navy's independent testers believe that unless a resolution is found for the F/A-18's demonstrated range limitations, the capabilities

the Navy will gain in replacing the A-7 with the F/A-18 will not offset the capabilities the Navy will lose. (See p. 19.)

The Navy considered two options to enhance the F/A-18's operational range. One was to increase carrier-based aerial refueling support and the other was to equip the F/A-18 with larger external fuel tanks. Both of these options entail some problems. On April 6, 1983, the Department of Defense told GAO it had decided to provide aerial refueling to resolve F/A-18 range limitations. GAO has reservations about this approach to resolve the range limitation problem. (See pp. 17, 20 and 21.)

F/A-18 ENTERS FLEET SERVICE WITH LIMITATIONS

The F/A-18 entered fleet service in 1983 as the first three Marine Corps squadrons began receiving their aircraft. These squadrons are scheduled to receive all their aircraft by August. The squadrons will train during 1983, and two of them will begin reporting combat readiness in January 1984. (See p. 22.)

Using F/A-18 support funds to pay for increases in the cost of building the F/A-18 does not appear to have adversely affected the Navy's ability to adequately support the aircraft in any significant way to date. However, two areas may limit the F/A-18's operational effectiveness and supportability as the aircraft enters fleet service. First, effective F/A-18 deployment depends on successfully developing a new generation of electronic warfare systems. These systems are experiencing some problems. Second, technical and schedule problems continue to delay the development and delivery of equipment needed for the Navy to take over F/A-18 logistics support from its contractors. Other problems could result if deficiencies identified in operational testing are not successfully corrected. (See pp. 22, 23 and 24.)

AGENCY COMMENTS AND GAO'S EVALUATION

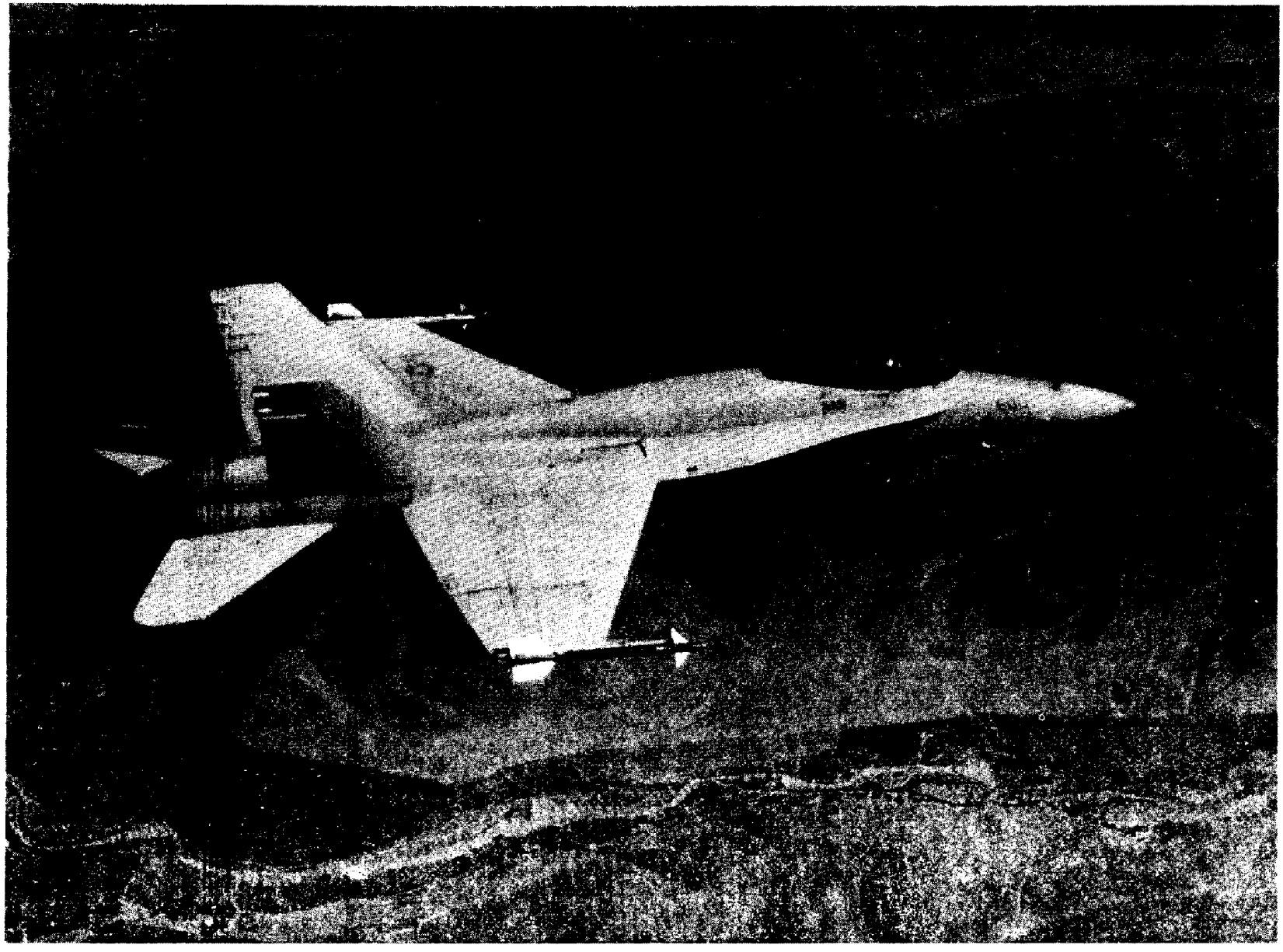
The Department of Defense gave GAO official oral comments on a draft of this report. The Department generally concurred with the findings and

conclusions in this report but declined to comment on several issues related to the use of F/A-18 support funds because the Department's position on this matter had not been definitively resolved. Other comments specifically relating to funding practices, performance deficiencies, and fleet introduction are summarized with GAO's evaluation at the end of Chapters 2, 3, and 4, respectively. (See pp. 14, 20, and 24.) Written comments dated May 13, 1983 were provided on GAO's draft report by the Acting Under Secretary of Defense for Research and Engineering. These written comments are not substantially different from the oral comments provided earlier and are included in their entirety as Appendix II to this report.

Contents

ABBREVIATIONS

APN	Aircraft Procurement, Navy
DOD	Department of Defense
FLIR/LST	forward looking infrared/laser spot tracker
HARM	High Speed Anti-Radiation Missile



F/A-18 HORNET

CHAPTER 1

INTRODUCTION

The F/A-18 naval strike-fighter is a twin-engine, single pilot, aircraft carrier-capable aircraft manufactured by the McDonnell Douglas Corporation. This multimission aircraft is designed to replace the F-4 and the A-7; and perform both fighter and attack missions for the Navy and Marine Corps such as strike escort, close air support, light attack, interdiction, and fleet air defense. The aircraft, in either the fighter or attack role, is identical. By configuring it with different external equipment and ordnance, the F/A-18 can be quickly converted to perform either mission. In its two configurations, the F/A-18 carries the AIM-7 Sparrow and the AIM-9 Sidewinder air-to-air missiles, an internal 20mm gun, guided munitions, High Speed Anti-Radiation missiles (HARM), forward-looking infrared/laser spot tracker (FLIR/LST) pods, and an assortment of air-to-ground conventional ordnance such as cluster bombs.

The F/A-18 entered fleet service in 1983 as the first three Marine Corps squadrons based at the El Toro Marine Corps Air Station, Santa Ana, California, began receiving their aircraft. The Navy plans to begin equipping its aircraft carriers with 24 F/A-18s beginning in 1985. The carriers Midway and Coral Sea, rather than having a mix of F/A-18s and the Navy's larger F-14 fighter aircraft, will each carry 48 F/A-18s. Other requirements for the F/A-18 include pilot training, reconnaissance, and attrition, which total 1,366 production aircraft in all.

PROGRAM STATUS

The F/A-18 has been in production since 1979. As of May 1, 1983, all 34 1979 and 1980 pilot and limited production aircraft had been delivered to the Navy, along with 31 of the 60 1981 full-scale production aircraft. The 1982 contract, which calls for 63 more aircraft, was agreed to in September 1982. In 1981 the Secretary of Defense approved full production of the number of aircraft needed to fulfill Navy and Marine Corps fighter requirements. On March 17, 1983, the Secretary of Defense approved full F/A-18 production for the Navy's attack mission requirements as well. Pilot and maintenance personnel have been training at the Lemoore Naval Air Station in California since July 1982.

The December 31, 1982, Selected Acquisition Report reported that the total cost of the 1,377 F/A-18 aircraft, which includes 11 development aircraft, was $39.8 billion. This represents little change over the December 1981 estimate of $39.7 billion.

PROGRAM MANAGEMENT

The F/A-18 project manager, Naval Air Systems Command, Washington, D.C., is responsible for all technical and management aspects of the program.

The McDonnell Douglas Corporation, St. Louis, Missouri, is the airframe prime contractor. The General Electric Company, Lynn, Massachusetts, designed and produces the aircraft's F-404 engine. McDonnell has overall weapon systems performance and technical management responsibility. McDonnell's major subcontractors include:

--The Northrop Corporation, Hawthorne, California, which designed the YF-17 prototype on which the F/A-18 is based, is building the center and aft fuselage, vertical fins, and subsystems located in those areas.

--The Hughes Aircraft Company, Los Angeles, California, designed and produces the radar in addition to several logistics support items such as flight simulators.

The F/A-18 is being flight tested at the Naval Air Test Center, Patuxent River, Maryland. The first training squadron is located at the Naval Air Station, Lemoore, California. Navy test squadrons based at Point Mugu and China Lake, California, conducted the operational test and evaluation.

OBJECTIVES, SCOPE, AND METHODOLOGY

This review was made at the request of the Chairman, Subcommittee on Defense, House Committee on Appropriations. In February 1982, the Chairman asked us to monitor the program's cost, schedule, and performance, and to identify potential problems. In later discussions with the Subcommittee staff, we were told of the Chairman's concern that F/A-18 logistics support funds were being used to finance airframe cost growth and overruns. In July 1982, the Subcommittee asked us to refocus our monitoring effort and brief them on:

--The amount of F/A-18 support funds used to finance budget shortfalls and overruns, and the operational effect of this practice on the Navy's ability to adequately support the aircraft.

--The operational test and evaluation results and the effect of performance problems on the aircraft's operational effectiveness.

We briefed the Subcommittee staff on the results of our review on November 12, 1982.

In assessing F/A-18 finances, we calculated the extent to which the F/A-18's production costs were over budget, the source of funding used to cover it, and the resulting implications. We reviewed the Navy's 1979-83 budget submissions and justifications, spending execution plans, obligation/expenditure status reports, logistics support plans, and contractor cost performance reports. We discussed program cost increases and logistics support implications with Navy program officials in Washington, McDonnell Douglas and Northrop Corporation officials, and Navy and Marine Corps officials at Lemoore and El Toro, California.

To review the F/A-18's technical and operational test and evaluation results, we reviewed testing plans, test result reports, summaries and briefing materials, and discussed them with the Commander and testing staff of the Navy's Operational Test and Evaluation Force, Norfolk, Virginia, as well as test pilots based at China Lake, California, and Patuxent River, Maryland, and Navy program officials in Washington, D.C.

Our review also encompassed the status of F/A-18 fleet introduction and deployment, which we discussed with Navy officials in Washington, D.C., Navy and Marine Corps personnel at Lemoore and El Toro, and contractor representatives from the Hughes Aircraft Company. We also reviewed pertinent logistics support plans, briefings, cost performance reports, and budget materials.

Our review was made in accordance with generally accepted government auditing standards.

On April 6, 1983, we discussed our draft report with Department of Defense (DOD) representatives and obtained official oral comments. These comments have been incorporated into the report and summarized at the end of Chapters 2, 3, and 4. Written comments dated May 13, 1983, were provided on our draft report by the Acting Under Secretary of Defense for Research and Engineering. These written comments are not substantially different from the oral comments provided earlier and are included in their entirety as Appendix II to this report. Our assessment of those written comments is detailed in Appendix III.

CHAPTER 2

F/A-18 PROGRAM FUNDING PRACTICES CAUSE CONCERN

Procuring a new modern weapon system entails substantial financial and technological risks. DOD must have a degree of flexibility in procuring these systems to minimize these risks and ensure sound acquisition management. But this flexibility must be consistent with the Congress' oversight responsibilities and intent in appropriating public funds. The funding practices employed by the Navy to cover increases in the cost of building the F/A-18 have caused congressional concern regarding oversight and the use of appropriated funds as the Congress intended.

Between 1979 and 1982, the Congress appropriated $5.2 billion to build 157 F/A-18s and to buy the unique logistics support equipment needed to field the aircraft.[1] During that time, the cost of building the aircraft exceeded the funds budgeted for this purpose by about $310 million. This was because of the negotiated F/A-18 contract prices from 1979 to 1982 having consistently exceeded what the Navy budgeted, and the prime contractor having projected overruns on the 1979, 1980, and 1981 contracts. To pay for most of this shortfall, the Navy used funds budgeted for F/A-18 logistics support, which supplied $161 million, and funds appropriated for other Navy aircraft programs, which have or are projected to supply about $139 million more. As a result, executing the F/A-18 budget over the last 4 years has differed significantly from the program presented and justified to the Congress. This has led the House Appropriations Committee to require additional information from the Secretary of Defense before considering the F/A-18's fiscal year 1984 budget request.

The Navy has

--twice requested and received funds for the same support items,

--used the support portion of the budget to include unidentified management reserves,

--shifted the cost of some essential support items out of the F/A-18 program, and

--avoided obtaining the approval of congressional committees by reprogramming funds after they expired.

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[1]This does not include the cost of initial F/A-18 spares which is administered in a separate account.

F/A-18 PROGRAM: OVER BUDGET LAST 4 YEARS

In the 4 production years since 1979, the cost of building the F/A-18--airframe, engines, and other government-furnished equipment--has surpassed F/A-18 funding requested for this purpose and appropriated by the Congress by about $310 million. A significant portion of this increase is attributable to the F/A-18 airframe contract with McDonnell Douglas. The following table shows the Navy's F/A-18 negotiated contract price, the airframe budget, the contractor's estimated cost to the government of F/A-18 overruns, and the variances between the three.

Variance Between Budgets and Airframe Contracts

Fiscal year	Aircraft quantity	Contract price	-	Airframe budget	=	Contract price over budget	+	Contract overrun	=	Total over budget
		(millions)								
				a				b		
1979	9	$ 268.0		$ 262.1		$ 5.9		$ 43.7		$ 49.6
1980	25	587.8		562.9		24.9		100.4		125.3
1981	60	1,074.0		1,059.7		14.3		52.4		66.7
1982	63	1,140.0		1,077.0		63.0		-		63.0
Total	157	$3,069.8		$2,961.7		$108.1		$196.5		$304.6

a The airframe budget is the amount reflected in the Aircraft Cost Sheet for the month of January of the fiscal year. The airframe budget includes nonrecurring tooling costs and certain items budgeted as integrated logistics support but executed on the airframe line. Also, 1981 includes a $96 million supplemental appropriation which added seven aircraft to the 1981 program.

b Contractor's estimate to complete as of November 1982. This amount represents the government's share of the overruns only.

This table represents only the negotiated airframe portion of the F/A-18 program. Increases in the cost of the engines and other F/A-18 expenses have also increased the cost of the program, while unused change allowance and other savings have offset cost increases. In total, between 1979 and 1982, the costs to procure the F/A-18 will probably exceed the amounts budgeted by over $310 million. This is shown in the following table.

F/A-18 Program Over Budget

	1979	1980	1981	1982	Total
	(millions)				
Airframe	$49.6	$125.3	$66.7	$63.0	$304.6
Engines	4.3	25.4	26.8	(10.4)	46.1
Other government-furnished equip.	2.0	3.1	(5.3)	(30.4)	(30.6)
Change allowance	(18.1)	(7.9)	(.5)	(5.4)	(31.9)
Other	11.1	-	11.8	-	22.9
Total	$48.9	$145.9	$99.5	$16.8	$311.1

As the tables show, negotiated F/A-18 contracts have usually exceeded what the Navy budgeted for those items. Since 1980, we have pointed out that DOD's budgets for the F/A-18 were too low.[2] One reason has been that these budgets were based on inflation indices prescribed by the Office of Management and Budget which did not, for the 1979-81 period, accurately reflect the rate of inflation in the aerospace industry and in the general economy. In September 1980, the Navy informed the Office of the Secretary of Defense that the 1979, 1980, and 1981 budgets were not adequate to cover expected program costs. At that time, the Congress had not yet approved the 1981 Defense Appropriations Act.

Contractor overruns estimated at $196.5 million on the first three F/A-18 airframe contracts have also contributed significantly to the program being over budget. McDonnell said that it attributes much of the contract overrun to correction of deficiencies discovered during developmental testing, including roll-rate problems, fuel cell leakage, and bulkhead failures. Other factors the prime contractor believes caused the overruns include subcontractor manufacturing problems and inexperience in building high-technology fighters. We discussed these overruns and their causes in previous reports.[3] In 1980 we found that both McDonnell and its principal subcontractor, Northrop, underestimated the amount of manufacturing hours required to build the F/A-18.

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[2]F/A-18 Naval Strike Fighter: Its Effectiveness Is Uncertain (PSAD-80-24, Feb. 14, 1980).

[3]F/A-18 Naval Strike Fighter: Progress Has Been Made but Problems and Concerns Continue (MASAD-81-3, Feb. 18, 1981).

Navy's F/A-18 Expected to be an Effective Performer but Problems Still Face the Program (MASAD-82-20, Feb. 26, 1982).

Although F/A-18 production performance appears to be improving, manufacturing problems continue to cause cost increases. For example, Northrop's major production problem has been ensuring that the proper parts reached their assigned place on the production line at the proper time. This creates added concern when considering that most of the parts involved are built by Northrop. While Northrop's parts problem has improved in recent months, it still continues, requiring that some assembly line work be performed out of sequence. This contributes to cost overruns.

According to Navy officials, the contractors will have more incentive to control costs in the future because the 1982 F/A-18 airframe and engine contracts are firm-fixed price.

CONCERN OVER FUNDING PRACTICES

To cover increases in the cost of building the F/A-18, the Navy employed a series of funding practices which caused congressional concern regarding oversight and the use of appropriated funds as the Congress intended. Procuring a new modern weapon system entails substantial financial and technological risks. DOD must have a degree of flexibility in procuring these systems to minimize these risks and ensure sound acquisition management. This flexibility must be consistent with the Congress' oversight responsibilities and with the Congress' intent in allocating national defense resources. The House Appropriations Committee, in its report accompanying the 1974 Defense Appropriations Act, stated

> "In a strictly legal sense, the Department of Defense could utilize the funds appropriated for whatever programs were included under the individual appropriaton accounts, but the relationship with Congress demands that the detailed justifications which are presented in support of budget requests be followed. To do otherwise would cause Congress to lose confidence in the requests made . . ."

We have long recognized the need to delicately balance the Congress' legislative and oversight responsibilities with the need for management flexibility in executing a complex acquisition program. In our decision in the matter of the LTV Aerospace Corporation, 55 Comptroller General 318 (1975), we said

> "Congress has recognized that in most instances it is desirable to maintain executive flexibility to shift around funds within a particular lump-sum appropriation account so that agencies can make necessary adjustments for 'unforseen developments'. . . This is not to say that Congress does not expect that funds will be spent in accordance with budget estimates . . . However, in

order to preserve spending flexibility, it may choose not to impose these particular restrictions as a matter of law, but rather to leave it to the agencies to 'keep faith' with the Congress."

To pay for increased F/A-18 production costs, $161 million was taken from the F/A-18 logistics support budget. As a result, F/A-18 budget execution over the last 4 years has differed significantly from the program presented and justified to the Congress. This has impeded effective oversight and has led the House Appropriations Committee to require additional information before being able to consider the F/A-18's fiscal year 1984 budget request. To cover most of the remaining shortfall, $139 million was or is projected to be provided from other Navy programs. Funds used to date were shifted without congressional approval, and special actions are being taken to reserve funding in other aircraft programs for future shifting of funds. This raises questions as to whether the Congress' intent in allocating national defense resources is being adhered to.

USE OF F/A-18 SUPPORT FUNDS

The F/A-18 procurement budget, like all naval aircraft budgets, contains two distinct parts--a "flyaway" and a support budget. The flyaway budget is by far the largest portion; it buys the aircraft itself. But when a new aircraft is deployed it requires special logistics support such as flight simulators, technical manuals, and unique ground support equipment. These support items are purchased concurrently with the aircraft and are included in the total program cost estimate. It was these support budget funds that covered a majority of the increases in the flyaway program.

Between 1979 and 1982, the Navy budgeted $1.3 billion to acquire F/A-18 support items. In 1979 the support program was $11.1 million over budget. But in the succeeding 3 years the Navy shifted $161 million to the flyaway portion of the budget to alleviate budget shortfalls and contract overruns. As a result, executing the F/A-18 support budget has differed significantly from the program presented and justified to the Congress. A detailed look at how support and other funds were used to pay F/A-18 cost growth and contract overruns can be found in Appendix I.

Some of the practices to acquire funds from the F/A-18 support budget included:

--Double budgeting of support which resulted in additional program costs not being reported.

--Use of management reserves, which were placed in the support budget but not identified.

--Cost transfer measures to reduce the costs charged to the F/A-18 program.

Double budgeting of support

Support programs which were deferred to make funds available for budget shortfalls and contractor overruns were often rebudgeted in later fiscal years. In some cases, technical problems delayed procuring support equipment in those years the Navy had originally budgeted them. In other cases, 3 and 4 year procurement items were restructured to free money up in the particular fiscal year it was needed. But in each of these cases, the Navy appears to be adequately funding the support program.

In effect the Navy budgeted these support items twice: once to cover budget shortfalls and contractor overruns and a second time to actually buy the support items. Thus, in large part, funds taken from support were passed on as future program costs. Approximately $125 million was passed on in this manner.

For example, in July 1981 McDonnell requested payment for the first $65 million increment of a 1980 contract overrun now projected to cost the government $100.4 million. To help pay this overrun, the Navy deleted $60 million in 1980 support funds budgeted to develop the radar and avionics testers, and the software that the testers need to function. But this did not eliminate the need for the $60 million in these programs. The programs will still cost approximately $264 million over the 1979-83 fiscal years. The schedule for the radar and avionics tester development did not slip because of this action. The software development was 2 years behind schedule and would have been delayed regardless of this funding decision. The funds, eliminated in 1980, were simply budgeted again in later years.

To accommodate the deletion of $60 million from the 1980 support program, 1981 obligations were increased substantially--$69 million--at a time when the 1981 fiscal year was nearly complete. Items in the 1981 program were then deferred to 1982 and beyond in a series of complex contract modifications. We made only a limited review of selected modifications. However, Navy officials said that the "bow wave" created in 1980 was to be made up in fiscal year 1983 and that year's budget submission was $63 million higher than it would have been to compensate for funds deleted in 1980. As such, the cost of the 1980 overrun was passed on as additional program costs. Navy officials also said that this cost has not been specifically identified in the Selected Acquisition Report.

Double budgeting also occurred in the fiscal year 1982 budget. To cover what they believed would be an expensive contract settlement, the Navy shifted $74 million in training equipment support funds, most of which was to acquire two flight simulators called Weapons Tactics Trainers. By 1982 the Navy was

contractually committed to buy four of the trainers. Problems with the visual system, however, delayed their delivery by more than a year and led the prime contractor, Hughes Aircraft Company, to terminate its visual system subcontractor. At the same time, pilot training had begun without the trainer, leading many in the Navy to doubt whether the total requirement of 11 trainers was really needed. Consequently, the Navy decided not to commit itself to additional trainers until the technical problems were solved and the trainer requirements revalidated.

In view of the technical problems in the trainer program, we believe the decision deferring 1982 acquisition of the Weapons Tactics Trainers was proper. However, funds appropriated in 1982 are available for obligation until September 1984. The Navy could have held them in abeyance until the trainer issues were resolved. Instead, these funds were shifted out of the training equipment program. The Navy has decided to acquire additional Weapons Tactics Trainers; but their cost, originally included in the 1982 budget, will now have to be included in future budgets.

Management reserves

Some funds shifted from the F/A-18 support budget were project management reserves. According to Navy officials, these reserves were not identified in the budget as such, but were placed in various categories of the support budget to cover unanticipated cost growth. For example, the publications category is used to produce and publish unique technical manuals needed to maintain the aircraft. The publications budget contained over $25 million in management reserves in 1 year and was consistently used to fund flyaway cost increases. In fact, little more than half the $160 million budgeted for publications over 4 years was actually used for that purpose.

We believe the F/A-18 Project Office was able to include large management reserves in its support budgets because the Navy and DOD did not require detailed justifications for the Navy's aircraft acquisition support budget submissions. We obtained the F/A-18's 1979-83 budget submissions and the justifications which accompanied them. In addition, we obtained the Navy's instruction to its commands on what information to include in its 1983 budget estimates. The instruction and justification material reveal that little substantive backup data was required of aircraft support budgets.

The F/A-18's 1983 ground support equipment budget justification, submitted according to DOD instructions, contained a $184 million item entitled "other." Its $62 million publication budget was divided into "ECP" (Engineering Change Proposal) and "other than ECP" estimates, and further divided as "Printing" and "Procurement." Given such latitude in DOD's budget justification requirements, it is understandable that significant management

reserves could be budgeted in any support line in excess of valid requirements.

Although the concept of recognizing that there are unknowns in a program and establishing a management reserve fund to pay for such contingencies is prudent and reasonable, this approach does not always survive the budget review process. For example, in fiscal year 1983, the Navy specifically identified a $35 million management reserve as a separate F/A-18 line item. This amount was subsequently cut from the F/A-18 budget.

Cost transfer

In addition to shifting support funds to alleviate budget contingencies, the Navy took longer term actions to avoid future support costs. While these costs are avoided by the F/A-18 procurement program, some will have to be funded by increasing future spares acquisition, operations and maintenance, and other budget requests.

For example, the Navy reclassified certain F/A-18 ground support equipment from "peculiar" (unique to the F/A-18) to "common" (used by two or more aircraft). The F/A-18's avionics tester has, since 1981, been funded as common support equipment. Although future aircraft may use the tester, and certain components are compatible with other testers, the F/A-18 is currently the only aircraft in the Navy's inventory that uses this tester. Because the tester is classified as common, its procurement cost is not borne by the F/A-18 program or included in the total F/A-18 program cost estimate.

In another example, the Navy reduced the scope of the F/A-18's intermediate level repair capability. In 1981 McDonnell submitted a $1.2 billion cost proposal to develop the F/A-18's automatic test equipment and test program sets. However, the Navy had only $500 million in its budget. To keep the program within budget, the Navy reduced the number of avionics components for which test program sets would be developed from 413 to 222. This reduced the number of components that can now be repaired by the carrier or air station. The remainder will either have to be sent to a depot facility for repair or replaced with a new component. According to Navy officials, the components eliminated as repairables are among the F/A-18's most reliable and, in some cases, it is more economical to replace the component than to develop the capacity to repair it. They said that reducing the scope of the intermediate level support program avoided costs to the F/A-18 procurement program that resulted in a $400 million savings to the Navy. However, it increased costs over $300 million in other areas. Whether a component is replaced directly or sent to depot for repair, additional spares are needed to replace the faulty components at the squadron level. This has increased the total F/A-18 initial spares requirement by $165 million and

F/A-18 operations and maintenance costs by $143 million. The latter is not counted as an F/A-18 program cost.

Cost transfer has also occurred within the F/A-18 program making certain costs appear less than was actually the case. For example, the Navy planned to begin acquiring FLIR/LST pods in 1982, and had requested and received the funds needed in its fiscal year 1982 budget. In September 1982, the Secretary of the Navy stipulated that the negotiated 1982 F/A-18 flyaway cost could not exceed $22.5 million per aircraft. Although FLIR/LST pods will not be purchased for every aircraft, they cost over $2 million each. It became evident that if the planned FLIR/LST purchase was made, the unit cost of the aircraft would exceed $22.5 million. To maintain the continuity of the FLIR/LST program, the Navy decided to buy the pods as planned. But it did not include it in the $22.5 million unit cost figure because the Navy did not use its 1982 appropriation to fund the FLIR/LST acquisition. Navy aircraft acquisition appropriations are active for 3 years; therefore the Navy has three appropriations available to it at any time. It simply used one of these other appropriations. It appears to us that the Navy should have included these costs in the 1982 flyaway unit cost and clarified that the unit cost was more than the publicized $22.5 million figure.

OTHER NAVY AIRCRAFT FUNDS USED TO PAY F/A-18 OVERRUNS

The Navy has or will soon shift an estimated $139 million from funds budgeted for other Navy aircraft acquisition programs to the F/A-18. As of May 1983, $67.8 million has been shifted, and based on contractor estimates, an additional $71 million may be required. Congressional reprogramming approval was not obtained because funds used to date were transferred after the aircraft appropriations expired.

Money in the Aircraft Procurement, Navy (APN) appropriation remains available for obligation for 3 years after the fiscal year begins. Thus, in May 1983, the Navy was administering its fiscal 1981, 1982, and 1983 budgets which expire on September 30, 1983, 1984, and 1985, respectively. Once the appropriation expires, the unobligated balances remaining in the Navy aircraft programs lose their separate identities and are merged into a pool of APN money. This pool, which is generally referred to as the "expired account," reverts to the Treasury but remains available to DOD to either (1) pay obligations incurred while the appropriation was active, (2) pay claims, or (3) initiate reprocurement in the event of contractor default.

According to the Navy, as long as funds are used for one of those three purposes, they do not formally notify the Congress on how funds from the expired account are used. Overruns are considered part of obligations incurred while the appropriation was active.

Consequently, when the expired APN appropriations were used, the Congress was not informed as it would have been if an active appropriation had been reprogrammed.

How the expired account has been used

In July 1981, the contractor requested payment on the first $40 million of the 1979 overrun and the first $65 million of the 1980 overrun. McDonnell now estimates the cost to the government of these overruns to be $43.7 million and $100.4 million, respectively. By the time the Navy and its contractor settled on the amount, the 1979 appropriation had expired. To cover the projected 1979 overrun and other F/A-18 cost growth, the Navy restored $51.4 million to the F/A-18 from the $119.6 million left in the expired account.

The 1980 contract overrun settlement, however, occurred nearly a year before that appropriation expired. If the Navy wanted to reprogram this from other programs, it had to obtain the Appropriations Committees' consent. Instead, it used $60 million from the support budget (see p. 9) and reprogrammed $3.4 million from other aircraft programs, an amount which is below the threshold required for the Committees' concurrence. The 1980 appropriation expired on September 30, 1982. Based on the contractor's $100.4 million overrun estimate, $35.4 million remains on the 1980 overrun. To pay this overrun, the Navy has since restored around $16 million from the expired account and plans to obligate the remaining 1980 overrun from this account.

Special actions being taken to reserve 1981 funds

McDonnell projects the government's share of the 1981 airframe overrun will be $52.4 million. The Navy plans to fund the entire overrun from the APN appropriation, and is taking special actions to ensure that sufficient funds are available to cover F/A-18 overruns.

First, on July 9, 1982, the Navy froze all new obligations against the appropriation until the amount needed to cover contingent liabilities, principally cost overruns, is determined. This order applied to all Navy aircraft procurement programs, which would normally have had until September 30, 1983, to obligate the funds. Second, the Navy is holding $50.6 million appropriated to other aircraft programs in abeyance, in what the Navy refers to as an "administrative reserve" account, also until the amount needed for contingent liabilities is firm. Because the funds were not transferred from one program to another, but are being held in reserve, the Navy does not consider this to be a reprogramming action, and thus not subject to congressional controls. We did not review the effect of these actions on other Navy aircraft programs.

CONGRESSIONAL CONCERN

On November 12, 1982, we provided much of the foregoing information to the staff of the Subcommittee on Defense, House Appropriations Committee. Similar information had been developed by the Committee's Surveys and Investigations staff. Reacting to these disclosures, the Committee Chairman stated, in a January 6, 1983, letter to the Secretary of Defense, that:

> "It is impossible to determine . . . what support equipment the Navy has ordered or plans to order, and where the Navy stands in relation to budgeted requirements. In view of these conditions, it is impossible for the Committee to consider the forthcoming Navy's budget request for the FY 1984 procurement program of the F/A-18."

The Chairman requested the Secretary of Defense to order a detailed financial audit of the F/A-18's contract transactions and funding practices and furnish this and certain legal opinions to the Committee. This review was made by the DOD Inspector General and General Counsel, and on April 22, 1983, the Secretary transmitted the requested opinions and a report of the Inspector General's audit to the Committee Chairman. We discussed our findings with the Inspector General's staff in January 1983. Their report cited similar budget and funding issues discussed in this report. In addition, the Inspector General's report discussed (1) deferral of essential items on production aircraft and (2) weaknesses in the Navy's accounting and financial reporting systems. The Navy, while agreeing that the funding practices and contract restructuring did occur, took exception to many conclusions and recommendations in the Inspector General's report. For example, the Navy stated that essential items were not deferred to offset cost growth, but rather were deferred because of technical delays and other factors beyond their control.

AGENCY COMMENTS AND OUR EVALUATION

DOD concurred in principle with the findings and conclusions presented in this chapter. DOD stated that it is carefully examining the matters presented to decide if additional controls or procedures are needed. DOD declined to comment on several issues raised on the use of F/A-18 support funds pending formulation of DOD's position by the Secretary of Defense.

With respect to the contractor's $196.4 million projected overrun, DOD stated that the actual contract overruns to date have totaled $127.2 million--$43.4 million in 1979 and $83.8 million in 1980. The remainder is contractor estimates of costs at completion which DOD believes have historically been high. While acknowledging that there will be additional overruns, DOD states that they cannot precisely estimate them at this time.

While concurring in our observation that little substantive backup data was required of aircraft support budgets, DOD said that greater detailed backup data is available and routinely reviewed during DOD's budget review process before submitting the President's budget to the Congress. Further detailed backup material may be available, but was not provided for our examination and is not required by current DOD and Navy instructions. As such, there is no assurance that it is routinely prepared or reviewed.

DOD officials concurred in part with our discussion on the use of expired funds. They believe that the Congress was told of the use of expired funds through congressional hearings and the Selected Acquisition Report, but conceded that some problems may still exist in congressional notification procedures. Selected Acquisition Reports are not designed in a way that would likely disclose the kinds of funding practices described in this report, and the Chairman of the House Appropriations Committee has described the Navy's testimony on these matters as evasive and misleading.

CHAPTER 3

DOD APPROVES FULL F/A-18 PRODUCTION: RANGE STILL AN ISSUE

In March 1983 the Secretary of Defense approved full production of the F/A-18 to fulfill the Navy's light attack mission. This action followed an independent evaluation by the Navy's Operational Test and Evaluation Force made from May to October 1982. The independent testers noted several deficiencies, the range of the aircraft being identified as the most serious. Based on several factors, the testers recommended that service use approval of the F/A-18 for the Navy's light attack mission not be granted.

The Navy believes that the problems identified in the operational test and evaluation have been or will be corrected. We believe, however, that range may still be a problem. The Deputy Secretary of Defense and the Navy stated that enhancing the F/A-18's operational range is required for long-range wartime attack interdiction missions and peacetime carrier training operations. The Navy's independent testers believe that unless a resolution is found for the F/A-18's demonstrated range limitations, the capabilities the Navy will gain in replacing the A-7 with the F/A-18 will not offset the capabilities the Navy will lose.

The Navy has considered two options to enhance the F/A-18's operational range--provide carrier-based aerial refueling support and equip the F/A-18 with larger external fuel tanks. Both of these options entail some problems. On April 6, 1983, DOD told us it had decided to provide aerial refueling to resolve F/A-18 range limitations. We have reservations about this approach to resolve the range limitation problem.

TESTERS RECOMMENDED AGAINST APPROVAL FOR SERVICE USE

The Navy's Operational Test and Evaluation Force recommended in November 1982 that approval for service use of the F/A-18 in the attack role not be granted and that previously granted service use approval for the fighter configuration be rescinded. The most serious problem the testers identified was the deficiency in the F/A-18's combat radius or range. Other deficiencies identified included the lack of an electronic warfare system, the excessive amount of wind-over-deck required to launch the aircraft on most carriers, the rapid descent rate of the F/A-18 parachute, locking of the aircraft's leading edge flaps, problems in the delivery of high drag weapons, wing oscillation, the inadvertent jettison of a Sparrow missile, and arrestment weight problems in carrier landings.

The Navy believes that the problems identified in the operational test and evaluation have been or will be corrected. The Operational Test and Evaluation Force plans to do follow-on testing to evaluate the corrections.

Range

The most significant problem noted in the operational test and evaluation was the deficiency in the F/A-18's unrefueled combat radius or range. The F/A-18's demonstrated range in the operational test and evaluation was between 247 and 480 nautical miles, depending on the profile flown, the external ordnance carried, and the number of fuel tanks. The Navy's independent testing organization stated that the A-7E's range under similar profiles and configurations is between 455 and 759 nautical miles. On this basis, the testers concluded that unless the F/A-18's range is increased, the carrier battle group might have to be situated closer to the enemy, thus increasing its vulnerability. It further concluded that the capabilities the Navy will gain in replacing the A-7 with the F/A-18 will not offset the capabilities lost unless the range is increased.

The Deputy Secretary of Defense, in approving the full F/A-18 production, said that enhancing the F/A-18's operational range is required for long-range interdiction missions. Also, the Navy stated that additional range is needed to provide optimal training opportunities in peacetime carrier operations.

The Navy considered two options to enhance the F/A-18's operational range (1) provide carrier-based aerial refueling support and (2) replace the current three 330-gallon external fuel tank configuration with two 460-gallon tanks and one 330-gallon tank. Either of these options entail some problems.

Fleet aerial refueling capabilities will decrease with the retirement of the A-7, while refueling requirements will increase with the introduction of the F/A-18. Navy officials agreed that if this option is pursued, current fleet aerial refueling assets would have to increase. This would increase costs and might further tax already limited carrier deck space. The F/A-18 is not viable as a tanker because it is not compatible with current refueling tanks and because of its low fuel capacity and high fuel consumption. The larger external fuel tanks, on the other hand, would add to the operational weight of the aircraft. This would increase wind-over-deck requirements, a problem for the F/A-18 during operational testing.

On February 2, 1983, the Secretary of the Navy rejected a proposed engineering change proposal to procure the larger external fuel tanks. In commenting on our draft report, DOD stated it intends to provide the additional carrier based aerial refueling support for the F/A-18. For the reasons outlined on pp. 20 and

21, we have reservations about this approach to the range limitation problem.

It should be noted that all scenarios do not require the maximum operational range. Operational range is influenced by various factors, including the threat encountered, the mission to be accomplished, the range of the fighter escort, the weapons carried to the target, the number of fuel tanks, and the profile the aircraft fly.

Other test problems identified

According to the Navy, most of the deficiencies noted by the independent testers have been corrected. However, they have not yet been fully incorporated or independently tested. Until they are, they remain potential limits to the F/A-18's operational effectiveness and suitability. These problems include:

--The lack of an electronic warfare system, which in part, led the testers to conclude the aircraft was not operationally effective. Development of the system is experiencing problems and is discussed in Chapter 4.

--High wind-over-deck requirements, the amount of wind which must flow across the deck to launch the aircraft. The testers noted that during light wind conditions, the Navy's oil burner carriers will be required to steam with at least six boilers. This means that the operational commander might not be able to launch the F/A-18 when needed if the carrier had to bring additional boilers on line to compensate for diminishing natural winds. This problem was noted to be particularly significant on the U.S.S. Coral Sea which carries an older catapult. Navy officials told us that an 8-knot reduction in the F/A-18's wind-over-deck requirements has been achieved through changes to the flight control system and has been successfully tested at sea.

--The rapid descent rate of the F/A-18's parachute which, in conjunction with wind velocity, resulted in three separate incidents of broken bone injuries. This safety issue subsequently resulted in the testers' recommendation that previously granted service use approval for the fighter mission be rescinded. The Navy plans to replace the parachute with one that incorporates a selectable glide feature. The parachute has already been qualified by the Air Force but requires qualification in the F/A-18.

--Lockout of the aircraft's leading edge flaps, which terminated tactical maneuvering and caused the F/A-18 to become vulnerable for substantial periods of time. It occurred because the hydraulic unit was not strong enough to move

the leading edge flaps when maneuvering, causing the mission computer to read them as being out of place, and immediately locking them. The Navy incorporated a software change which minimizes this problem. Further corrections are planned.

--The bomb arming wire, which damaged the stabilator during separation of high-drag weapons. The Navy resolved this problem by rerouting the arming wire.

--Wing oscillations, which occurred at particular speeds and altitudes when certain combinations of weapons on the outboard and tip-wing stations caused the wings to vibrate. The problem has been corrected in most F/A-18s, but still persists in the F/A-18 trainer aircraft.

--The inadvertent jettison of a Sparrow missile. This occurred because of a foreign object coming in contact with the uninsulated connectors inside the fuselage causing them to short out. The Navy believes this problem has been resolved by insulating the connectors.

--The F/A-18's relatively low-maximum landing weight (32,200 pounds), which reduced the number of munitions it was allowed to carry back to the carrier. The Operational Test and Evaluation Force determined that as many as six to eight F/A-18s at a time would be forced to land with low fuel reserves or routinely jettison high value ordnance that may be in short supply aboard the carriers. The allowable landing weight has since been increased to an acceptable level as a result of further testing.

THE F/A-18 AS A REPLACEMENT FOR THE F-4 AND THE A-7

The Navy's Operational Test and Evaluation Force evaluated the capabilities of the F/A-18 against the two aircraft it was designed to replace. According to the testers, once the deficiencies are corrected, the F/A-18 fighter should be superior to the F-4. However, as a replacement for the A-7, the independent testers believe that unless an adequate remedy can be provided for the F/A-18's demonstrated range limitations, the F/A-18's attack capabilities gained do not offset those capabilities lost.

The F/A-18 has one-half to two-thirds the demonstrated range of the A-7. Also, when the Navy replaces the A-7 with the F/A-18, it will lose dual attack/tanking capability because the A-7 now serves as a tanker for other A-7s. Launching the F/A-18 requires more wind-over-deck than the A-7 and with the required fuel reserves and maximum landing weight, the F/A-18 cannot land with as much unexpended ordnance.

The F/A-18's primary advantage over the A-7 is its dual role capability. It can be rapidly configured to function as either a fighter or attack aircraft, and can function autonomously in the fleet air defense role. It has a better radar, equally good weapons delivery capability and is more maneuverable and survivable than the A-7. In the attack mode, the F/A-18 can provide some self-escort capability, and by jettisoning its tanks, it can quickly assume a self-defense posture. In addition, it is more maintainable and reliable than the A-7. The F/A-18 met or exceeded Test and Evaluation Master Plan criteria in the areas of reliability, operational availability, mean flight hours between failures, direct maintenance hours per flight hour, and mean time to repair.

The Navy's independent testers believe that given enhancements to the F/A-18's range and correction of other deficiencies, the F/A-18 would be superior to the A-7.

AGENCY COMMENTS AND OUR EVALUATION

DOD, in commenting on our draft report, stated that most of the deficiencies identified in the F/A-18's operational evaluation have been corrected. DOD said that problems in the F/A-18's range and gross weight have been known since developmental testing in 1979, and that these deficiencies were tradeoffs made to enhance survivability, reliability, and dual fighter/attack capability. DOD further stated that the operational range of the F/A-18 is adequate for the strike-fighter mission. With respect to DOD's comment that the range of the F/A-18 is adequate for the strike-fighter mission, Navy officials indicated to us that there is no objective criteria for performance of a Navy strike-fighter aircraft.

To address the F/A-18's range deficiencies in the light attack role, DOD spokesmen told us the Navy intends to increase carrier-based refueling support. However, there seems to be some uncertainty about how this will be done. DOD acknowledged that current fleet aerial refueling assets are not adequate to support the additional requirements imposed by the F/A-18. The Navy's independent test group and the Navy stated that with the F/A-18, seven A-6-type tanker aircraft will be needed on a carrier to support peacetime operations. To accommodate these added requirements, the DOD spokesmen told us in April 1983 that an additional KA-6 tanker aircraft will be added to the four presently assigned to each carrier and two A-6E aircraft from the carrier's A-6E squadrons will be used in a tanker role.

Reliability and maintainability problems experienced with KA-6s has already led the Navy to add a fifth such aircraft to one of its carriers. Should these problems persist, therefore, it may be necessary to assign even more than five KA-6s to each carrier when F/A-18s are deployed. Perhaps this is why in later written

comments--Appendix II, p. 12--DOD does not mention the addition of KA-6 aircraft as a proposed means of accommodating F/A-18 range limitations.

The Navy can use any of the 10 A-6E's on board a carrier as tankers by fitting them with appropriate external fuel tanks. However, when used in this way the A-6Es are not available for medium attack mission requirements. In addition, A-6E procurement rates may not be adequate to support the additional tankers that F/A-18 deployment will require. In its June 1982 Naval Aviation Plan, the Navy stated that providing 5 A-6 tanker designated aircraft per carrier would necessitate procuring A-6Es at an annual rate of 18 through the 1980s. The Navy's fiscal year 1984 budget requests 6 A-6Es in 1984 and 6 in 1985.

CHAPTER 4

F/A-18 ENTERS FLEET SERVICE WITH LIMITATIONS

The F/A-18 entered fleet service in 1983 as the first three Marine Corps fighter squadrons based at the El Toro Marine Corps Air Station, Santa Ana, California, began receiving their aircraft. These squadrons are scheduled to receive all their aircraft by August. The squadrons will train during 1983, and two of them will begin reporting combat readiness in January 1984. Pilot and maintenance training has been proceeding at the Lemoore Naval Air Station in California, since July 1982.

Using F/A-18 support funds to pay for increases in the cost of building the F/A-18 does not appear to have adversely affected the Navy's ability to adequately support the aircraft in any significant way to date. However, two areas may limit the F/A-18's operational effectiveness and supportability as the aircraft enters fleet service. First, effective F/A-18 deployment depends on successfully developing a new generation of electronic warfare systems. These systems are experiencing some problems. Second, technical and schedule problems continue to delay the development and delivery of equipment needed for the Navy to take over F/A-18 logistics support from the contractors. Other problems could result if deficiencies identified in operational testing are not successfully corrected. These are discussed in Chapter 3.

KEY F/A-18 SYSTEMS ARE NOT READY

A modern aircraft weapon system, to perform in the current threat environment, needs an effective electronics warfare system. The F/A-18 is to be equipped with a new generation of systems, including the ALR-67 radar warning receiver and the HARM system. Both systems have experienced development difficulties, and their incorporation on the F/A-18 pose problems in terms of both schedule and effectiveness.

The ALR-67's technical evaluation, done in early 1982, revealed several significant deficiencies. The Navy believes most of these deficiencies have been corrected; however, these corrections were not extensively flight tested before operational evaluation began in January 1983. Two problems were not corrected before operational evaluation, including low system reliability.

Both Navy and Marine Corps officials expressed reservations as to whether an aircraft weapon system lacking electronic warfare capability would be dispatched to the forward edge of the battle area in a wartime scenario. If the ALR-67 operational evaluation is not successful and it is not approved for service use, integrating advanced electronic warfare equipment into the F/A-18

might be delayed for years. The HARM system requires a functional radar warning receiver to operate. If the ALR-67 proves unacceptable, the Navy either will have to delay incorporating advanced electronic warfare capability on the F/A-18 until it is acceptable, or use the ALR-67 predecessor model, the ALR-45. The F/A-18 has been configured to accept the ALR-67, and would require extensive modification to take the ALR-45.

The HARM operational evaluation was generally successful and the system is in limited production. However, it has never been successfully integrated with the ALR-67 or the F/A-18. During HARM testing, it was matched with the ALR-67's predecessor model and experienced several integration problems.

In addition to technical problems, the F/A-18 electronic warfare program faces potential schedule slippage as well. The ALR-67 is to be delivered in June 1984, while HARM will be installed in October 1984. Officials associated with both programs told us that these production and installation schedules are tight. Even if they are met, El Toro's Marine squadrons will not have electronic warfare capability when they begin reporting combat readiness in January 1984. Marine Corps officials believe this might adversely affect their readiness status. In addition, only two of the three squadrons will receive electronic warfare systems because the Navy has only authorized 25 ALR-67 systems until operational evaluation and service use approval is complete.

In addition to electronic warfare systems, the F/A-18 does not currently possess the capability to differentiate between friendly and enemy aircraft beyond visual range. The Navy is developing a noncooperative target recognition capability, and this system is expected to be included on aircraft delivered in late 1985.

As the F/A-18 enters fleet service, we believe its operational effectiveness will be limited by the unavailability of this essential equipment.

NAVY LOGISTICS SUPPORT NOT FULLY IN PLACE

Comprehensive logistics support planning has been going on since the aircraft's early development to ensure smooth F/A-18 fleet introduction. Nevertheless, there have been some problems. The F/A-18 represents the state of the art in digital avionics systems, and is more advanced than any other aircraft in the current Navy inventory. As a result, major equipment items vital to F/A-18 logistics support had to be developed for the aircraft.

Automatic test equipment is a term used to classify devices which test aircraft components and identify parts of those components in need of repair. Test program sets refer to both the

interface device which connects the automatic test equipment to the aircraft component being tested, and the software program which instructs the equipment on what to test for.

Two major pieces of automatic test equipment, the radar and avionics test stations, as well as all the test program sets, had to be developed for the F/A-18. Problems are inherent in any new development program and this one has been no exception. We have reported on problems and delays in the production and delivery of F/A-18 support equipment in our previous reports.[1] Technical problems delayed the start of test program set development 2 years, from 1980 to 1982. The avionics test station was also delayed. As a result, the F/A-18 squadrons will begin receiving automatic test equipment in 1983, but without all the software needed to test most aircraft components.

According to the Navy, by the end of 1983, enough test program sets will have been delivered to permit Navy personnel to repair 40 percent of the aircraft's avionics repairable components. Either the contractor will have to repair the other 60 percent or the Navy will have to procure additional spares. During 1984, the Navy expects this capability to increase to 60 percent. The Navy expects to attain a 90-percent capability to repair F/A-18 avionics repairables when the first F/A-18 deploys aboard a carrier in early 1985. They expect full capability will be achieved in late 1985, with the single exception of FLIR/LST. The Navy is now beginning to produce this system and it is expected to depend on interim support until 1987 or 1988.

In early 1984, the first F/A-18 Marine squadrons will be fully deployed and reporting combat readiness, but will only be able to repair 60 percent of the F/A-18's avionics repairable components. As a result, there is some risk attendant to any F/A-18 Marine deployment before full maintenance capability is attained.

AGENCY COMMENTS

DOD agreed with the information presented in this chapter. However, DOD believes that the lack of full maintenance capability does not pose an unacceptable risk to F/A-18 deployment.

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[1] Operational and Support Costs of the Navy's F/A-18 Can Be Substantially Reduced (LCD-80-65, June 6, 1980).

Navy F/A-18 Expected to Be an Effective Performer but Problems Still Face the Program (MASAD 82-20, Feb 26, 1982).

APPENDIX I

THE NAVY'S F/A-18 AIRCRAFT PROGRAM:

FUNDING FOR AMOUNT OVER BUDGET

(data as of January 10, 1983)

Fiscal Year 1979[a]

Where it went

Category		Program over/(under) budget
		(millions)
Airframe contract:		
Negotiated target	$268.0	
Approved budget	-262.1	
Target over budget		$ 5.9
Contract overrun		43.7
Total contract over budget		$ 49.6
Airframe change allowance		(18.1)
Engine		4.3
Other government-furnished equipment		2.0
Total flyaway program over budget		$ 37.8
Support program		11.1
Total program over budget		$ 48.9

Where it came from

Other Navy aircraft programs:	
Expired FY 1979 APN appropriation	$(51.4)

[a]The entire 1979 amount over budget was paid from the APN account after the appropriation expired on September 30, 1981. The F/A-18 support program was not used to cover flyaway cost growth in 1979 because it also overran its budget.

APPENDIX I

Fiscal Year 1980

Where it went

Category		Program Over/(Under) Budget
		(millions)
Airframe contract:		
Negotiated target	$587.8	
Approved budget	-562.9	
Target over budget		$ 24.9
Contract overrun		$ 100.4
Total contract over budget		$ 125.3
Airframe change allowance		(7.9)
Engine		25.4
Other government-furnished equipment		3.1
Total amount of flyaway program over budget		$ 145.9

Where it came from

Support program:	
Airframe ground support equipment:	
Automatic test equipment program restructuring	$ (60.0)[a]
Other	(28.9)[b]
Publications	(30.0)[c]
Total support reduction	$(118.9)
Offset: Cost growth in other support	7.3
Net reduction in support	$(111.6)
Other Navy aircraft programs:	
Expired FY 1980 APN appropriation	$ (35.4)[d]
"Below threshold" reprogramming	(3.4)
Total	$(150.4)

[a]The restructuring of the Automatic Test Equipment program is discussed on page 9.

[b]This amount does not appear in any of the 1980 budget backup documents we obtained, and was apparently added after the budget was sent to the Congress. It appears to be either a function of excessive cost estimating or a management reserve.

[c]According to the Navy, much of the $30 million transferred from publications to flyaway became available because the contractor failed to submit an acceptable cost proposal. They funded this program in the following year's budget. Since the Navy had until September 30, 1982 before the 1980 appropriation expired, the absence of an acceptable proposal does not appear to us to be a logical reason for not spending the funds as budgeted. We can only conclude that the funds were taken because they were needed to fund budget shortfalls in the flyaway portion of the budget.

[d]The Navy plans to use the 1980 APN account, which expired in September 1982, to pay the estimated final $35.4 million increment of the 1980 contract overrun which McDonnell projects will be $100.4 million. The first increment was paid from the restructured Automatic Test Equipment Program.

APPENDIX I

Fiscal Year 1981

Where it went

Category		Program over budget
		(millions)
Airframe contract:		
Negotiated target	$1,074.0	
Approved budget	-1,059.7	
Target over budget		$ 14.3
Contract overrun		52.4
Total contract over budget		$ 66.7
Airframe change allowance		(.5)
Engine		26.8
Other government-furnished equipment		(5.3)
Other flyaway		11.8[a]
Total amount of flyaway program over budget		$ 99.5

Where it will come from

Support program:	
Training Equipment	$(8.5)
Avionics and engine ground support equipment	(9.1)
Publications	(39.3)[b]
Total support reduction	(56.9)
Offset: Cost growth in airframe ground support equipment and logistics support services	$ 17.5
Net reduction in support	$(39.4)
Other Navy Aircraft Programs	
FY 1981 Appropriation	(52.4)[c]
Additional Appropriation	(4.5)[d]
Total	$(96.3)

[a]$11.8 million was charged against the airframe line item, but is for items other than the airframe contract. For example, equipment procured from other military services, which should have been charged as government-furnished equipment, was charged against the airframe line.

[b]The Navy told us that the $39.3 million transferred from publications to the flyaway budget was a $27.7 million project management reserve and $11.6 million budgeted for technical manuals which turned out not to be needed.

[c]The Navy plans to fund the entire airframe overrun—now projected at $52.4 million—from the APN appropiation.

[d]The Navy received $4.5 million more in 1981 than they had expected and budgeted for.

APPENDIX I

Fiscal Year 1982

Where it went

Category		Over budget
		(millions)
Airframe contract:		
Negotiated contract price	$1,140.0	
Approved budget	-1,077.0	
Total contract over budget		$ 63.0[a]
Airframe change allowance		(5.4)
Engines		(10.4)
Other government-furnished equipment		(30.4)
Total amount of flyaway program over budget		$ 16.8

Where it will come from

Support program:	
Avionics ground support equipment	$ (13.9)
Training equipment	(74.2)[b]
Publications	(15.8)[c]
Total support reduction	$(103.9)
Offset: Cost growth in airframe/engine ground support equipment[d]	66.2
Other costs and budget adjustments	26.9
Net reduction in support	$ (10.8)

[a]In September 1982, the Navy reached what was viewed as a favorable contract settlement with the McDonnell Aircraft Company. Nevertheless, this settlement exceeded the Navy's F/A-18 airframe budget by $63 million.

[b]The $74.2 million in training funds was obtained by cancelling the planned procurement of two Weapons Tactics flight simulator trainers, and deleting modification funds for the four trainers already on contract. The trainer procurement funds will be budgeted again. This is discussed on page 9 of this report.

[c]The F/A-18 Project Office told us these funds are being held in abeyance until a cost proposal is received from the contractor. However, it appears to us these funds have already been shifted and used for another purpose.

dAccording to the Project Office, much of this cost growth was for additional unanticipated contractor interim support, needed because of delays in the Navy's support equipment program.

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THE UNDER SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

RESEARCH AND
ENGINEERING

13 MAY 1983

Mr. Donald E. Day
Senior Associate Director
Mission Analysis and Systems
Acquisition Division
General Accounting Office
Washington, D.C. 20548

Dear Mr. Day:

This is in reply to your letter to the Secretary of Defense regarding your draft report dated March 18, 1983, on "Cost and Performance Issues in the Navy's F/A-18 Program", GAO Code No. 951743, OSD Case No. 6217.

The findings of the report are generally based upon comparing P-5 budget estimates, used in developing a budgetary request, and contractors estimates to complete contracts. These estimates are separated in time by up to five years in a development program and the differences are caused by several factors such as unexpected inflation rates, developmental delays as well as possible contract overruns.

Certain findings and conclusions have not been commented on. These comments will be forwarded following a review of the issues raised both in this report and an IG audit on the same subject. Offical Department of Defense comments on the remaining findings and conclusions are attached for your use.

Sincerely,

James P. Wade, Jr.

James P. Wade, Jr.
Acting

Attachment

DoD COMMENTS ON
GAO UNNUMBERED DRAFT REPORT ENTITLED "COST AND PERFORMANCE ISSUES IN THE NAVY'S F/A-18 PROGRAM,"
RECEIVED MARCH 18, 1983 (GAO CODE NO. 951743)
OSD CASE NO. 6217

FINDINGS

- FINDING A: Cost Growth in the F/A-18 Program. Excluding initial spares administered in a separate account, GAO found that between 1979 and 1982, (1) Congress appropriated $5.2 billion to build the F/A-18 and buy the unique logistics support equipment needed to field the aircraft and (2) the cost of building the aircraft and the first year of logistics support has exceeded the funds budgeted by $311.1 million. (p. 4, GAO Draft Report)

  COMMENT: Partially concur. The quoted $311.1 million cost growth pertains only to the flyaway portion of the budget. Currently the auditable cost growth in the overall F/A-18 program has been $67.8 million or 1.3% of the $5.2 billion appropriated by Congress. Based on the contractor's estimate, DoD recognizes that there will be additional cost growth for the 1979-1982 period. The precise amount cannot be determined at this time.

- FINDING B: Significant Portion of This Increase is Attributable to the Airframe Contract. By comparing the Aircraft Cost Sheet (P-5) for the month of January 1983 with the negotiated contract price and the contractor's November 1982 estimate-to-complete, GAO found that for the four years 1979 through 1982, (1) the McDonnell Aircraft Company (McDonnell) contract price is over budget by $108.1 million, (2) there is a contract overrun of $196.5 million, and (3) the resulting total over budget is $304.6 million for F/A-18 airframes. (pp. 4-5, GAO Draft Report)

  COMMENT: Partially concur. Comparison of a negotiated contract with a submitted P-5 Cost Sheet omits program changes and is misleading unless adjusted for impacts of inflation, configuration changes and program changes. The budgets prepared during the 1977-82 time frame had a built

in shortfall due to aerospace industry inflation rates being far in excess of those mandated by OMB.

The "Variance Between Budgets and Airframe Contracts" chart on page 5 of the draft report lists Contract Overruns of $43.7M, $100.4M and $52.4M in 1979, 1980 and 1981 respectively. This is based on the contractor's estimate which has historically been high. The actual contract cost growth to date has been $43.4M in 1979 and $83.8M in 1980 for a total of $127.2 million. This has contributed significantly to the $67.8 million program cost growth previously mentioned which represents the Governments currently known portion of the risks associated with start-up of production. The program has now transitioned to Firm Fixed Price Contracts wherein the Government no longer shares risks.

- FINDING C: Increases in Cost of Engines and Other Expenses Also Increased Program Costs While Savings Have Largely Offset It. GAO found that while costs for engines and other costs have exceeded budget by $46.1 million and $22.9 million, respectively, for the four years 1979 through 1982 (for total increases of $69.0) unused change allowances of $31.9 million and increased use of other Government Furnished Equipment (GFE) of $30.6 million (for a total savings of $62.5 million) largely offset the increases ($6.5 million difference)--so the total overbudget is $311.1 ($304.6 for airframes plus $6.5 equals $311.1). (p. 5, GAO Draft Report)

  COMMENT: Partially concur. The application of the $62.5 million as an offset to "Engines and other expenses" is somewhat arbitrary. This "savings" (in other government furnished equipment and change allowances) applies to the total program including the McDonnell contract.

- FINDING D: Cause of Cost Growth--Budget Shortfalls Due to Underestimated Inflation. GAO found that (1) the negotiated F/A-18 airframe and engine contract prices from 1979 through 1982 consistently exceeded Navy budget for these items, amounting to over $100 million (for the period) and (2) one reason has been inflation indices prescribed by the Office of Management and Budget (OMB) which did not accurately reflect the rate of inflation in the aerospace industry and the general economy for the 1979-1981 period. (GAO reported that the F/A-18 Project Office believes inflation is the principal cause of program cost growth, and in September 1980, it informed the Office of the Secretary of Defense (OSD) that the 1979, 1980, and 1981 budgets were not adequate to cover expected program costs. GAO noted that at the time Congress had not yet approved the 1981 Defense Appropriations Act.) (pp. 4-6, GAO Draft Report)

  COMMENT: Concur: Through FY 82 the F/A-18 procurement account has absorbed an estimated $255 million of unfunded inflation, which distorted the distribution of funds on

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all P-5 displays. There is not a method to reflect a funding shortfall on the previously submitted P-5.

- FINDING E: Cause of Cost Growth--Contractor Overruns. Contrary to the position taken by the Project Office, GAO found the principal reason for program cost growth was contractor overruns. GAO further found (1) that contractor overruns estimated at $196.5 million on the first three F/A-18 contracts contributed significantly to the $310 million cost growth (GAO's actual calculation is $311.1 million), (2) one of the major reasons for the overruns was that, early in the program, both McDonnell and its principal subcontractor, Northrop, underestimated the amount of manufacturing hours required to build the F/A-18, and (3) that McDonnell attributes much of the overruns to correction of deficiencies discovered during developmental testing, including roll rate problems, fuel cell leakage and bulkhead failures (discussed in GAO's prior report MASADS-82-20, February 26, 1982, OSD Case No. 5854, and MASAD-81-3, February 18, 1981, OSD Case No. 5611), as well as subcontractors' manufacturing problems and inexperience in building high technology fighters. (p. 6, GAO Draft Report)

  COMMENT: Concur in principle. McDonnell contract overruns to date have been $127.2 million vice $196.5 million; auditable program cost growth to date has been $67.8 million vice $311.1 million. It is expected that overrun and/or cost growth figures will increase, but as explained earlier, we are unable to determine precise figures.

- FINDING F: Manufacturing Problems Continue to Cause Cost Increase. GAO found that although Northrop's production performance appears to be improving, (1) one major problem has been assuring proper parts reach their assigned place on the production line at the proper time, (2) Northrop's parts problem still continues, requiring that some assembly line work be performed out of sequence, and (3) this contributes to cost overruns. (GAO noted that, according to Navy officials, unlike the previous cost-plus contracts, the 1982 F/A-18 airframe and engine contracts are Firm-Fixed Price and future contracts probably will be Firm-Fixed Price--thus costs will be more closely controlled in the future.) (pp. 6-7, GAO Draft Report)

  COMMENT: Concur. Technically, the term "cost overrun" does not apply to firm-fixed price contracts, and the use of the term "higher prices" would be more appropriate.

- FINDING G: Navy Budgeted $1.3 Billion to Acquire Support Items, But Shifted $161 Million to the Flyaway Portion of the Budget to Alleviate Budget Shortfalls and Contract Overruns. GAO found that (1) between 1979 and 1982, Navy budgeted $1.3 billion to acquire F/A-18 support items such as flight simulators, technical manuals and unique ground support equipment, (2) in 1979, the support program was $11.1 million over budget, (3) in the succeeding three years (notwithstanding the 1979 overage) Navy shifted $161 million to the flyaway portion of the budget to alleviate budget shortfalls and contract overruns on the F/A-18 (GAO details the uses in Appendix I of the report), and (4) there have been delays in automatic test and training equipment programs, but these seem attributable to other causes. (GAO noted that to date, use of F/A-18 support funds for budget shortfalls and contract overruns does not appear to have adversely affected F/A-18 fleet activation or logistics support in any significant way. (p. 7, GAO Draft Report)

  COMMENT: Partially Concur. The baselines used for this finding were initial Navy distributions of Congressional appropriations. The Congress changed the F/A-18 budget significantly each year, adding aircraft and both subtracting and adding funds. The Navy distributed the Congressional changes proportionally and then adjusted as necessary as the program evolved and the actual required distribution of funds became known. These conclusions reflect only the accuracy of the initial distribution of funds and not a program execution plan. It is acknowledged that funds were redistributed to alleviate budget shortfalls and contract growth.

- FINDING H: Navy Employed a Series of Budgetary and Funding Manipulations--Double Budgeting of Support Which Added to Future Program Costs. GAO found that one reason F/A-18 logistics support was not significantly affected was that approximately $90 to $125 million of the funds taken from support (between 1979 and 1982) were passed on as future program costs--in effect the Navy budgeted these support items twice: once to pay cost growth and overruns and a second time to actually buy the support items. For example, GAO found that to pay the $65 million overrun requested by McDonnell in July 1981--the first increment of an overrun now projected at $100.4 million, (1) Navy deleted $60 million in 1980 support funds budgeted to develop the radar and avionics testers and test program sets (which are software and interface devices the testers need to function), (2) but this did not eliminate $60 million from these programs (since) the programs were to, and will, cost approximately $264 million over the 1979-1983 fiscal years, (3) the test program set software development was two years behind

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schedule and would have slipped regardless of this funding decision, (4) to absorb the deferral of 1980 funds, 1981 obligations were increased $69 million when the 1981 fiscal year was nearly completed, and (5) items in the 1981 program were then deferred to 1982 and beyond in a series of complex contract modifications. (GAO noted it made only a limited review of selected contract modifications, but contract officials told GAO the "bow wave" created in 1980 was to be made up in fiscal year 1983, and that year's budget submission was $63 million higher than it would have been to compensate for funds deleted in 1980. GAO also noted that while Navy officials advised the cost growth has been reported in the Selected Acquisition Report--SAR--it was not specifically identified.) (pp. 7-8 GAO Draft Report)

COMMENT: Comment to be provided at a later date.

- FINDING I: Another Example of Double Budgeting Occurred in the 1982 Budget. GAO found that Navy shifted $74 million in training equipment support funds, most of which was to acquire two flight simulators called Weapons Tactics Trainers, to cover what it believed would be an expensive contract settlement. Specifically, GAO found that (1) by 1982, Navy was contractually committed to buy four of the trainers, (2) pilot training had begun without the trainer because problems with the visual system delayed delivery more than a year, leading many in the Navy to doubt whether the total requirement of eleven trainers were really needed and the project officer to decide not to commit to additional trainers until the technical problems were resolved and the trainer requirements revalidated, (3) the decision deferring future acquisition was proper, however, Navy could have held the funds in abeyance until the trainer issues were settled since funds appropriated in 1982 are available for obligation until September 1984, (4) instead, these funds were shifted from the support program and fully committed to cover cost growth, (5) Navy recently decided to acquire additional trainers (although the final number has yet to be determined) and (6) consequently, these trainers, originally part of the 1982 budget, will have to be again included in future budgets. (p. 9, GAO Draft Report)

  COMMENT: Comments to be provided at a later date.

- FINDING J: Navy Employed a Series of Budgetary and Funding Manipulations--"Wrong Year" Funding, in Effect, Committing Future Appropriations to Pay Present Obligations. GAO found that (1) in September 1982, Navy wanted to equip its attack configuration aircraft with the Forward Looking Infrared/-Laser Spot Tracker pods (FLIR/LST) costing over $2 million per aircraft and requested the amount needed in its 1982 budget, (2) the 1982 contract includes the FLIR/LST, but is being bought with fiscal year 1983 money, (3) Navy requested funding in FY 1983 to make its second year's FLIR/LST purchases, but it is already using part of these funds to buy the 1982 FLIR/LSTs, and (4) thus, another source of funding will have to be found for the FY 1983 buy. (GAO noted that the F/A-18 project office expects to take funds from the 1984 appropriation.) (pp. 7 and 9, GAO Draft Report)

  COMMENT: Comments to be provided at a later date.

- FINDING K: Navy Employed a Series of Budgetary and Funding Manipulations--Use of "Management Reserves" Which Were Funds Budgeted for F/A-18 Support in Excess of Valid Requirements. GAO found that (1) some funds shifted from the F/A-18 support budget were project "management reserves"--i.e., money budgeted for support in excess of actual requirements, (2) according to the project office, these reserves were not identified in the budget as such, but rather were placed in various support line items to cover unanticipated cost growth, (3) for example, the publications line item contained over $25 million in management reserves in one year and was consistently used to fund flyaway cost growth and, in fact, little more than half the $160 million budgeted for publications over four years was actually used for that purpose. (pp. 8-10, GAO Draft Report)

  COMMENT: Concur in part. The use of the P-5 cost sheet as a baseline tends to distort the size of the management reserve. Congress increased the F/A-18 budget significantly in each year. The Navy distributed the funds proportionally to P-5 cost elements and then adjusted as necessary as the actual required distribution became known. Modest management reserves were contained in the support cost elements of the original budgets but nothing near the extent indicated by an analysis of movement of funds from support cost elements in the P-5. In the FY 83 budget, the Department identified the management reserves in a separate P-5 cost element. However, the Congress deleted these funds.

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- FINDING L: Instructions and Justification Material Reveal that Little Substantive Backup Data was Required of Aircraft Support Budgets. GAO found that the F/A-18 ground support equipment budget for 1983, submitted in accordance with Defense Department instructions, (1) contained a $184 million item entitled "other," (2) its $62 million publication budget was divided into "ECP" and "other than ECP" estimates and further divided as "Printing" and "Procurement," and (3) given such latitude in Defense Department Budget justification requirements, it is understandable that significant "management reserves" could be budgeted in any support line in excess of valid requirements. GAO also found that Navy specifically identified a $35 million management reserve as a separate F/A-18 line item (but) this amount was subsequently cut from the F/A-18 budget. (In reporting this item, GAO is recognizing that there would have been no management reserve except for those included under the other line items.) (p. 10, GAO Draft Report)

  COMMENT: Concur. The appearance of large sums attributable for items labeled "other" results from the level of detail requested by the GAO. Further details are available and reviewed by DoD during the budgetary process prior to submittal to Congress. As a point of clarification, the $35 million was cut by the Congress.

- FINDING M: Navy Employed a Series of Budgetary and Funding Manipulations--Cost Avoidance Measures to Reduce the Costs Charged to the F/A-18 Program. GAO found that in addition to shifting support funds to alleviate budget contingencies, Navy took longer term actions to avoid future support costs. GAO further found that some have to be funded in other Navy appropriations, although avoided by the F/A-18 program. GAO cited as an example, that since 1981, the F/A-18's avionics tester has been funded as "common" support equipment (thus) its procurement cost is not borne by the F/A-18 program or included in the total F/A-18 program cost estimates although F/A-18 is currently the only aircraft in Navy's inventory that uses this tester. (pp. 8 and 10, GAO Draft Report)

  COMMENT: Comments are to be provided at a later date.

  FINDING N: Navy Reduced the Scope of the F/A-18's Intermediate Level Repair Capability, But Increased Cost in Other Areas. As another example of Navy's cost avoidance measures, GAO found that in 1981, Navy reduced the number of avionics components for which test program sets would be developed from 413 to 222 to keep the program in budget (since it) only had $500 million budgeted and McDonnell submitted a $1.2 billion cost proposal to develop the F/A-18's

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automatic test equipment and test program sets. GAO further found that (1) this reduced the number of components that can now be repaired by the carrier or air station, the remainder either will have to be sent to a depot facility for repair, or replaced with a new component, (2) whether a component is replaced directly or sent to depot for repair, additional spares are needed to replace the faulty component at the squadron level, and (3) this has increased the total F/A-18 initial spares requirements from $190 million to $355 million, and (4) in addition, increased F/A-18 operations and maintenance costs by $143 million (although) the latter is not counted as an F/A-18 program cost. (p. 11, GAO Draft Report)

COMMENT: Comments are to be provided at a later date.

FINDING O: Other Navy Aircraft Funds Used to Pay F/A-18 Overruns. GAO found that (1) money in the Aircraft Procurement, Navy (APN) appropriation remains available for obligation three years after the fiscal year begins, (2) once the appropriation expires, the Navy aircraft programs lose their separate identities and are merged into a pool of APN money generally referred to as the expired account, which reverts to the Treasury but remains available to DoD to either pay obligations incurred while the appropriation was alive, pay claims, or initiate procurement in the event of contractor default, (3) as long as funds are used for one of those three purposes there is no regulation requiring that Congress be notified or concur on how funds from the expired account are used, (4) as of March 1983, Navy has shifted $68 million--funds appropriated for other Navy aircraft acquisition programs--from the expired account to the F/A-18, and an additional $71 million may be required, and (5) Congress was not informed of the transfers (as would have) been the case had the appropriation been active. (pp. 11-12, GAO Draft Report)

COMMENT: Concur in part. Congress was advised through the Dec 81 SAR, the Jan 82 Congressional Data Sheets, and Congressional testimony in May 82 before the HAC.

o FINDING P: How the Expired Account Has Been Used to Cover the 1979 and 1980 F/A-18 Overruns. GAO found that (1) in July 1981, the contractor (McDonnell) requested payment on the first $40 million of the 1979 overrun and the first $65 million of the 1980 overrun, (2) by the time Navy and McDonnell settled on the amount, the 1979 appropriation had expired, (3) Navy transferred $51.4 million from the expired account to F/A-18 to cover the projected 1979 overrun and other F/A-18 cost growth, (4) the 1980 appropriation had not expired (so to cover the 1980 overrun) Navy used $60 million from the support budget (as discussed earlier) and

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reprogrammed $3.4 million from other aircraft programs, below the threshold required for Congressional concurrence, (5) McDonnell now estimates these overruns (1979 and 1980) to be $43.7 million and $100.4 million, respectively, (6) since the 1980 appropriation contained $89.9 million when it expired on September 30, 1982, Navy has since funded around $16 million of the estimated remaining $35.4 million 1980 overrun from the expired account and plans to fund the remaining 1980 overrun from this account. (p. 12, GAO Draft Report)

COMMENT: Concur in part. Use of the contractor's estimated cost at completion is not appropriate for budgetary or contractual changes. Negotiation of the final costs may reduce this estimate significantly. The Navy plans to fund any costs validated by the contracting officer as they occur.

- FINDING Q: Navy is Taking Special Actions to Insure that Sufficient Funds are Available (in the Expired Account) to Cover F/A-18 Overruns for 1981. GAO found that McDonnell projects the 1981 airframe overrun will be $52.4 million and Navy plans to fund the entire overrun from the APN appropriation and has taken steps to assure sufficient funds are available in the account for this purpose--i.e., (1) on July 9, 1981, Navy froze all new obligations against the appropriation, the order applying to all Navy aircraft procurement programs which would normally have until September 30, 1983 to obligate funds and (2) Navy is hold-ing $50.6 million appropriated to other aircraft programs in abeyance, in what Navy refers to as an "administrative reserve" account not subject to Congressional controls because the funds were not transferred from one program to another and (thus) not a reprogramming. (GAO noted it had not reviewed the effect of these actions on other Navy aircraft programs.) (p. 12, GAO Draft Report)

  COMMENT: Concur. At the time, the Navy considered these actions to be in the best interest of the government and consistent with prudent management techniques. Contractual transactions obligate the government to pay specific amounts from each fiscal year appropriation. Under many of these actions the ultimate total liability is not fixed, but contain contingent liabilities. Contingent liabilities are reviewed at regular intervals and a freeze may be in order until costs can be analyzed and contract growth is reasonably certain. The frozen funds can then be reprogrammed.

- FINDING R: Navy Recommends Full F/A-18 Production Despite Deficiencies and Testers Recommendation Against Approval for Service Use. GAO found that Navy's Operational Test and Evaluation Force (its independent test group) evaluated the F/A-18's effectiveness and suitability for the attack role from May to October 1982, and noted several deficiencies--combat radius (range) and excessive amount of wind over deck required to launch aircraft on most carriers being the most serious--as well as other deficiencies including wing oscillation, inadvertent locking of the leading edge flaps, problems in the delivery of certain weapons, and arrestment weight problems in carrier landings. GAO reported that in November 1982, the independent test group recommended approval for service use in the attack role not be granted and that previously granted service use approval for the fighter configuration be rescinded due to an unsafe parachute. GAO further found that notwithstanding the position taken by its testing experts in December 1982, (1) Navy recommended to the Secretary of Defense that full production of the F/A-18 proceed to fulfill Navy's light attack mission requirements and (2) Navy believes the problems are correctable and that many have already been resolved. (GAO noted, however, that the corrections have not been independently tested and Navy has not determined if or how it will address the critical problem of F/A-18 range.) (p. 15, GAO Draft Report)

  COMMENT: Concur. Problems with F/A-18 range and gross weight highlighted and made public by the OPEVAL in 1982 were specifically noted on discrepancy reports from developmental and initial operational testing as early as 1979. These performance issues were addressed at the Fighter DSARC reviews in April 1980. It was determined that these specifications deficiencies were overt trade-offs and made to enhance survivability, reliability, and mission commonality. The Secretary of the Navy and the CNO have testified that the operational range of the F/A-18 is adequate for the strike-fighter mission.

  Software changes made to the flight control computer, that were not available in time for the OPEVAL, have demonstrated an eight-knot reduction in the carrier wind-over-deck requirement, the elimination of 5.6 Hz wing oscillation in the F/A-18, and resolution of the leading edge flap lock out problem. While all of these changes have been verified by testing at NATC, Patuxent River, they remain to be evaluated extensively by OPTEVFOR. An airplane with these software modifications incorporated has been delivered to the independent testers and those modifications are being evaluated during F/A-18 Follow-on Test and Evaluation.

Since the OPEVAL the maximum carrier arrested landing weight has been increased to 33,000 pounds. This represents approximately 8,500 pounds over the F/A-18 operating weight of 24,500 pounds.

The present F/A-18 parachute is being replaced by one with a pilot-selectable glide feature.

- FINDING S: F/A-18 Met Between 45 and 87 Percent of Its Range Criteria--Navy Has Not Decided Whether to Increase the Range But Two Options Have Been Discussed to Accomplish This. GAO found that (1) Navy's independent test group revealed the F/A-18 range varied between 45 and 87 percent depending on the profile flown, the external ordnance carried, and the number of fuel tanks, (2) Navy has not decided whether to increase the range, but believes it can be done if necessary and (3) two options have been discussed (by Navy) to accomplish this (i.e., first, provide aerial tanking support for the F/A-18, and second, replace the current three 330 gallon external tank configuration with two 460 and one 330 gallon tanks). (p. 16, GAO Draft Report)

  COMMENT: Non concur. There are two range criteria for the F/A-18. One is for the fighter mission and the other for an attack mission. It is assumed that the comments in this finding refer to the attack or interdiction mission. The criteria for that mission is 550 NM and is very specific as to profile, ordnance and fuel tanks. Testing results have varied between 450 NM and 575 NM. No comment can be made on the 45-87 percent figure quoted without knowing the requirement it was measured against.

  The original requirement for the F/A-18 stated "No statement of operational need or performance capability is to be assumed as being required at any cost, that would preclude later relaxations of goals, particularly in areas where relatively small decreases in capabilities would result in significant dollar cost savings." The Secretary of the Navy and the CNO have testified that the operational range of the F/A-18 is adequate for the strike-fighter mission.

- FINDING T: Either of These Options to Increase Range Entail Some Problems. With respect to the option to provide aerial tanking support, GAO found that fleet aerial tanking capabilities will decrease with the retirement of the A-7 (one of the two aircraft being replaced with F/A-18), while tanking requirements will increase with the introduction of the F/A-18 (the F/A-18 uses more fuel, having one-half to two-thirds the range of A-7). GAO further found that Navy officials agree that if this option is pursued, current fleet aerial tanking assets will have

to be increased which will increase costs and may further tax already limited carrier deck space, and reported the possible addition of a KA6D tanker per carrier. (GAO noted that these tankers have experienced reliability problems in fleet operations. GAO also noted that the F/A-18 is not viable as a tanker because it is not compatible with current refueling tanks and because of its low fuel capacity and high fuel consumption.) With respect to the option to change external fuel tank configuration, GAO found that this will add to the operational weight of the aircraft, increasing the F/A-18's wind-over-deck requirements (already a problem for F/A-18). (pp. 16 and 18, GAO Draft Report)

COMMENT: Concur in Part. Present Navy intentions are that one additional A-6 aircraft with an improved aerial refueling store and greater fuel capacity will be assigned to medium attack squadrons to enhance airborne tanking capabilities.

- FINDING U: Other F/A-18 Test Problems Identified. GAO found that in addition to the major problem with range, the Navy testers identified other deficiencies--i.e., (1) the lack of an electronic warfare system which contributed significantly to the testers' finding the aircraft was not operationally effective, (2) the high wind-over deck requirements, (3) the rapid descent rate of the F/A-18's parachute in conjunction with wind velocity which resulted in three separate incidents of injuries, (4) the aircraft's leading edge flap which terminated tactical maneuvering and resulted in the F/A-18 becoming vulnerable for substantial periods of time, (5) the bomb arming wire damaged the stabilator during separation of high drag weapons, (6) the wing oscillations which occurred at certain speeds, altitudes and weapon combinations, causing the wing to vibrate, (7) the inadvertent jettisoning of a Sparrow missile and (8) the F/A-18's relatively low maximum landing weight which reduces the number of munitions it can carry back to the carrier. (GAO reported that the Navy testers considered the rapid descent rate of the F/A-18's parachute to be a sufficiently significant safety issue to result in the tester's recommendation that the previously granted approval for service use for the fighter configuration be rescinded.) GAO further found that while the Navy believes it has corrected most of the remaining deficiencies identified by the independent tester, they have not been fully incorporated or tested by the Navy's independent testers and the deficiencies remain potential risks to the F/A-18's operational effectiveness and suitability. (pp. 16-18, GAO Draft Report)

COMMENT: Concur. The F/A-18 radar warning receiver of the electronic warfare suite is the ALR-67. The ALR-67 has experienced development delays, but 25 systems have been procured under a waiver and will be available by October 1983. Integration in the F/A-18 will start in April 1983, and the software to make the production systems operable should be available at delivery. A new and proven bomb arming wire routing has been identified, tested, and approved. The AIM-7M Sparrow missile jettison has been traced to FOD in uninsulated connectors. This problem has been resolved by the use of insulated connectors. Other test problem comments were addressed under Finding R.

- FINDING V: F/A-18 Fighter Should be Superior to the F-4 and, Given Enhancements to Range and Correction of Other Deficiencies, Would be Superior to the A-7. GAO found that Navy's independent test group evaluated the capabilities of the F/A-18 against the two aircraft it was designed to replace (F-4 and A-7) and determined once the deficiencies (discussed in Findings R, S, T and U above) are corrected, the F/A-18 fighter should be superior to the F-4, but unless an adequate remedy can be provided for the F/A-18's demonstrated range limitations, the F/A-18's attack capabilities gained do not offset those capabilities lost. GAO further found that (1) the F/A-18 has one-half to two-thirds the demonstrated range of A-7, (2) A-7 now serves as a tanker for other A-7's and Navy will lose this dual attack/tanking capability when A-7's are replaced, (3) launching F/A-18 requires more wind-over-deck than A-7, and (4) with required fuel reserves and maximum landing weight, F/A-18 cannot land with as much unexpended ordnance. GAO also found, however, that the F/A-18 has advantages over A-7 (primarily its dual role capability), is more maintainable and available than the A-7, has met or exceeded all criteria in the areas of reliability, operational availability, mean flight hours between failures, direct maintenance hours per flight hour, and mean time to repair, and given enhancements of the range and correction of other deficiencies, Navy's independent test group believe F/A-18 would be superior to the A-7. (p. 18, GAO Draft Report)

COMMENT: Concur. OPTEVFOR's comment that the "F/A-18's attack capabilities gained do not offset those capabilities lost" may have been taken somewhat out of context. (1) As a rough rule of thumb, the F/A-18 is acknowledged to have roughly two-thirds the range of an A-7E when similarly loaded. (2) The Navy has directed that one additional A-6 be assigned to medium attack squadrons. In addition, the present KA6Ds will eventually be retired and replaced by A-6Es. A new aerial refueling store will replace the existing D-704 Buddy Stores aboard each CV. While the Navy is losing the A-7E as a tanker, it is replacing the KA6D

with more capable, dual/role A-6E tankers and the total tanking capability will actually increase. (3) Wind-over-deck comments were addressed in Finding R. (4) The F/A-18 can, in some cases, land with a greater fuel reserve than the A-7E. With 2 HARM/LAU-118, 2 AIM-9, FLIR, 2 ROCKEYE, full internal gun ammo, and fuel tanks, the F/A-18 has a first pass arrested fuel weight of 3056 pounds; the A-7E has 1111 pounds. The F/A-18 may delete 1 HARM and add 1 AIM-7 for increased operational flexibility (first pass fuel is then 3416 pounds). With 2 HARM and an AIM-7 added, fuel weight is 2,558 pounds. Three thousand pounds equates to a 100-nautical-mile bingo for the F/A-18. The A-7E would require approximately 2500 pounds of fuel for a 100-nautical-mile bingo in that configuration. Additional range comments under Findings T.

- FINDING W: Fleet Introduction Risks--Navy Logistics Support Will Not Be Fully In Place When the F/A-18 Deploys. Noting that it reported on problems and delays in production and delivery of F/A-18 support equipment in its prior report (MASAD 82-20, February 26, 1982, OSD Case No. 5854), GAO found that technical problems delayed the start of test program set development two years from 1980 to 1982, the avionics test station was also delayed and, as a result, F/A-18 squadrons will begin receiving automatic test equipment in 1983 without all the software needed to test most aircraft components. GAO also found that Navy officials believe that (1) by the end of 1983, enough test program sets will have been delivered to permit Navy personnel to repair 40 percent of the aircraft's avionics repairable components, (2) during 1984, Navy repair capability will increase to 60 percent, (3) when the first F/A-18 deploys aboard a carrier in early 1985, 90 percent capability to repair F/A-18 avionics repairables is expected, and (4) in late 1985, full capability will be achieved with the single exception of the FLIR/LST (on which production is only now beginning and is expected to be dependent on interim support until 1987 or 1988), and (5) this means that when the first F/A-18 Marine squadrons are fully deployed and reporting combat readiness (1983), they will not have full maintenance and either the contractor will have to repair 60 percent (of the avionics repairable components) or Navy will have to procure additional spares. (pp. 20-21, GAO Draft Report)

  COMMENT: Concur. Although complete logistics support will not be fully in place, this should not present an unacceptable risk. Statement concerning software to test aircraft components would be more explicit if it read aircraft avionic components.

- FINDING X: Fleet Introduction Risks--Key F/A-18 Systems Are Not Ready. GAO found that the F/A-18 is to be equipped with a new generation of systems including the ALR-67 radar warning receiver and the High Speed Anti-Radiation Missile (HARM) system, both of which have experienced development difficulties, and their incorporation on the F/A-18 poses some risk in terms of both schedule and effectiveness. Specifically, GAO found that several significant deficiencies were revealed in the early 1982 ALR-67 technical evaluation, and while Navy believes most of these deficiencies have been corrected, (1) these corrections were not extensively flight tested before operational evaluation began in January 1983, (2) two problems, including low system reliability, were not corrected before operational evaluation, (3) if the ALR-67 operational evaluation is not successful and it is not approved for service use, integration of electronic warfare equipment into the F/A-18 might be delayed years since the HARM missile system requires a functional radar warning system to operate, (4) if the ALR-67 proves unacceptable, Navy either will have to delay incorporating electronic warfare capability on the F/A-18 until it is acceptable, or use the ALR-67 predecessor model, the ALR-45, (5) F/A-18 has been configured to accept the ALR-67 and would require extensive modification to accommodate the ALR-45, (6) the HARM operational evaluation was generally successful and the system is in production, however, it has never been successfully integrated with the ALR-67 or the F/A-18, and (7) Navy and Marine officials have expressed reservations as to whether an aircraft weapons system lacking electronic warfare capability would be dispatched to the forward edge of the battle area in a wartime scenario. (pp. 21-22, GAO Draft Report)

  COMMENT: Concur. The development of the ALR-67 and HARM systems have both experienced delays and have not kept pace with the F/A-18 development.

- FINDING Y: F/A-18 Electronics Warfare Program Faces Potential Schedule Slippage As Well. GAO found that the ALR-67 is to be delivered in June 1984, with HARM to be installed in October 1984. (GAO noted that officials associated with both programs advised these production and installation schedules are tight.) (p. 22 GAO Draft Report)

  COMMENT: Concur. The comment in Finding X applies.

- FINDING Z: Marine Squadrons Will Not Have Electronic Warfare Capability When They Begin Reporting Combat Readiness (and Their Readiness Status May Be Adversely Affected). GAO found that even if the production and installation schedules for ALR-67 and HARM are met (i.e., no slippage occurs), (1) the El Toro (California) Marine squadrons receiving F/A-18s in 1983 will not have electronics warfare capability when they begin reporting combat readiness in January 1984, (2) Marine officials believe this might adversely affect their readiness status and (3) in addition, only two of the three squadrons receiving F/A-18s will receive electronic warfare systems because Navy has only authorized 25 ALR-67 systems until operation and service use approval is complete. (The implication of this finding is that the readiness status of the squadron not receiving an electronic warfare system is clearly adversely affected.) (p. 22, GAO Draft Report)

  COMMENT: Concur. The option to waiting for development of the ALR-67 was to equip the F/A-18 with an older, less capable system which would not be compatible with the HARM missile.

- FINDING AA: F/A-18 Does not Currently Possess the Capability to Differentiate Between Friendly and Enemy Aircraft Beyond Visual Range. GAO found that in addition to potential risks associated with electronic warfare systems, although Navy is developing a noncooperative target recognition capability and this system is expected to be included on aircraft delivered in late 1985, the F/A-18 does not currently possess the capability to differentiate between friendly and enemy aircraft beyond visual range. (p. 22, GAO Draft Report)

  COMMENT: Concur. No other aircraft currently has this capability as it is a new technology which is still under development.

CONCLUSIONS

- CONCLUSION 1. GAO concluded that to acquire the funds needed to cover program cost growth and minimize the damage to the F/A-18 support program, Navy employed a series of budgetary and funding manipulations which cause concern, because, among other things, it (1) increased future program costs and (2) complicated effective F/A-18 budget review and oversight. (p. 7, GAO Draft Report)

  COMMENT: Comments to be provided at a later date.

APPENDIX II

- CONCLUSION 2: GAO concluded that, in effect, Navy budgeted support items twice, once to pay airframe cost growth and overruns, and a second time to actually buy the support items. (p. 8, GAO Draft Report)

  COMMENT: Comments to be provided at a later date.

- CONCLUSION 3: GAO concluded that Navy's use of "wrong year" funding for the F/A-18 increased program cost in the future while only delaying the day that the increase has to be reported and paid for--in effect committing future appropriations to pay current obligations, distorting budget submissions and justifications, and impeding effective oversight and review. (p. 9, GAO Draft Report)

  COMMENT: Comments are to be provided at a later date.

- CONCLUSION 4: GAO concluded that Navy has or plans to cover (F/A-18) cost growth of about $310 million--calculated at $311.1 million--within its own resources (1) by using $161 million originally budgeted for F/A-18 logistics support and $139 million from other Navy aircraft programs and (2) to avoid degrading the support program, $90-125 million of the $310 million was deferred to future budgets and extensive "management reserves" were placed in the support budgets in excess of actual requirements. (p. 13, GAO Draft Report)

  COMMENT: Partially concur. The auditable cost growth in the overall F/A-18 program to date has been $67.8 million or 1.3% of the $5.2 billion appropriated by the Congress. Based on the contractors estimate, there will be additional cost growth, but the amount cannot be determined at this time.

- CONCLUSION 5: GAO concluded that the funding manipulations employed by the Navy to address F/A-18 cost growth have impeded Congress' ability to carry out its oversight and review responsibilities, and has the potential to impede the intent of Congress in appropriating public funds. (p. 13, GAO Draft Report)

  COMMENT: Comments are to be provided at a later date.

- CONCLUSION 6: GAO concluded that the 1982 F/A-18 airframe and engine contracts are Firm-Fixed Price (as opposed to the cost-plus type used prior to 1982), and future contracts probably also will be Firm-Fixed price. Thus, if Navy realistically budgets for the F/A-18 airframe and other flyaway costs, the overrun situation faced by the program over the last four years should not recur. (p. 13, GAO Draft Report).

APPENDIX II

COMMENT: Concur. However, the FY 83 Congressional reduction of $363 million will require careful management to prevent overruns.

- CONCLUSION 7: GAO concluded that although Navy believes it has corrected most of the remaining deficiencies other than range, noted by the independent testers during the May through October 1982 testing, the corrections have not been fully incorporated or tested by the Navy's independent testers, and until they are, they remain risks to the F/A-18's operational effectiveness and suitability. (p. 16, GAO Draft Report).

  COMMENT: Concur. It should be noted that the majority of the corrections have been incorporated, tested and validated by the contractor and/or the Navy Test Center.

- CONCLUSION 8: GAO concluded that until the range problem is adequately addressed and deficiencies are fully corrected and tested, the decision regarding the use of the aircraft as a light attack weapon system should be delayed. (pp. 18-19, GAO Draft Report)

  COMMENT: Non concur. The Secretary of Defense has reviewed all of the relevant data, determined that the aircraft is suitable for all missions and approved full production.

- CONCLUSION 9: GAO concluded that while recognizing the present risks to the F/A-18 deployment (i.e., the need to (1) develop an effective logistics support capability, (2) incorporate essential electronic warfare capability and (3) resolve deficiencies uncovered in the F/A-18 operation evaluation, and (4) potential for slippage in present schedules for delivery and installation of both the ALR-67 and HARM programs), if the schedules hold and technical problems are resolved, the F/A-18 should be a capable, supportable and effective weapon system. (p. 22, GAO Draft Report)

  COMMENT: Concur. The SECDEF arrived at the same conclusion prior to his approval of the aircraft for full production.

RECOMMENDATION

- RECOMMENDATION 1: GAO recommended that the Secretary of Defense delay production of the F/A-18 to fulfill the Navy light attack mission until the Navy satisfactorily addresses how it will increase the F/A-18's range, and identifies, plans and budgets for the additional resources required to accomplish this. (p. 19, GAO Draft Report)

  COMMENT: Non concur. The Secretary has reviewed all relevant data, requirements have been reassessed and revalidated and action for deficiencies is underway. His decision was to proceed with the program.

MATTER FOR CONSIDERATION OF CONGRESS

The execution of the F/A-18 support budget over the last four years has differed significantly from the program presented and justified to Congress, and has led the House Appropriations Committee to require additional information before being able to consider the F/A-18's Fiscal Year 1984 budget request. The use of funds appropriated for other aircraft programs, particularly the actions taken to reserve funds in the 1981 appropriation, raises questions as to whether the intent of Congress in allocating national defense resources is being adhered to. In view of these conditions, GAO proposes that Congress may wish to consider legislative and administrative remedies to the conditions discussed in this report. (GAO cautioned that such remedies must strike a delicate balance between Congress' legislative and oversight responsibilities, and the need for executive flexibility in executing a complex acquisition program). (pp. 13-14, GAO Draft Report)

COMMENT: Partially concur. As the F/A-18 program has evolved, major changes have taken place, as in any major program. Congress was advised of changes, although problems may still exist in our Congressional notification procedures. We do not feel that Congress desires to preclude the flexibility of the Services in developing and executing a program. DoD is carefully examining this observation to determine what additional controls or procedures, if any, should be implemented.

OUR ASSESSMENT OF DOD'S WRITTEN COMMENTS

FINDING A: Partially concur

DOD cites an overall F/A-18 program cost growth figure of $67.8 million. This amount however, only represents those funds obtained from other Navy aircraft programs as of May 13, 1983. DOD has not considered McDonnell's estimated cost to the government at completion, nor did they include funds used from the F/A-18 support portion of the budget. Certain support costs have been passed on to succeding budgets and should have been included. (See pp. 5 and 6.)

FINDING B: Partially concur

DOD states that our analysis of program cost increases is misleading unless adjusted for the impact of inflation, configuration changes and program changes. Inflation and program changes are useful indicators for explaining why costs increased, but we do not see how explaining these factors would change our estimates, nor does DOD offer any revised estimates which incorporate these factors. As for configuration changes, the Congress provides the F/A-18 program with change allowance funding to mitigate the impact of such contingencies. Our analysis assumes that when all change orders are negotiated, their cost will not exceed what the Navy has budgeted for changes. DOD further states that the cost to the government of F/A-18 overruns has totalled $127.2 million to date over the 1979-81 period. This only represents the amount the contractor has actually billed the government for as of May 13, 1983. (See pp. 5 and 6.)

FINDING C: Partially concur

We agreed with DOD's concerns on this subject and changed wording of this section accordingly. (See p. 5.)

FINDING D: Concur

We did not verify DOD's estimate of absorbed inflation. (See p. 6.)

FINDING E: Concur in principle

See finding B.

FINDING F: Concur

See pp. 6 and 7.

FINDING G: Partially concur

While we concur with DOD that flexibility is needed to incorporate changes dictated by events and that the Congress has changed the F/A-18's budgets, we believe we adequately considered this by selecting a baseline which reflects both the assumptions behind the budget presented to the Congress and the Congress' decisions on that budget. (See p. 8.)

FINDING H, I, J, M, and N:

DOD declined to comment on these matters pending formulation of the Department's position by the Secretary of Defense. (See pp. 8 through 12.)

FINDING K: Concur in part

The items we identified as management reserves were specifically identified to us as management reserves by Navy officials. (See pp. 10 and 11.)

FINDING L: Concur

While concurring in our observation that little substantive backup data was required of aircraft support budgets, DOD said that greater detailed backup data is available and routinely reviewed during the DOD's budget review process before submitting the President's budget to the Congress. Further detailed backup material may be available, but was not provided for our examination and is not required by current DOD and Navy instructions. As such, there is no assurance that it is routinely prepared or reviewed. (See pp. 10 and 11.)

FINDING O: Concur in part

DOD believes that the Congress was informed of the use of expired funds through congressional hearings and the Selected Acquisition Report, but conceded that some problems may still exist in congressional notification procedures. Selected Acquisition Reports are not designed in a way that would likely disclose the kinds of funding practices described in this report, and the Chairman of the House Appropriations Committee has described the Navy's testimony on these matters as evasive and misleading. (See pp. 12 through 14.)

FINDING P and Q: Concur in part and concur

(See p. 13.)

FINDING R: Concur

(See pp. 16 and 17.)

FINDING S: Non-concur

We have revised this section of the report to address DOD's concerns. (See p. 17.)

FINDING T: Concur in part

Our concerns with the Navy's proposed aerial refueling solution is found on pages 20 and 21.

FINDING U and V: Concur

See pp. 18 through 20.

FINDING W, X, Y and Z: Concur

See pp. 22 through 24.

FINDING AA: Concur

Other aircraft possess the capability to verify friendly aircraft beyond the visual range through the Identification Friend or Foe system. (See p. 23.)

CONCLUSION 1, 2, 3, 5

DOD declined to comment. (See pp. 8 through 12.)

CONCLUSION 4: Partially concur

See Finding A. (See p. 5.)

CONCLUSION 6: Concur

See p. 7.

CONCLUSION 7: Concur

See p. 18.

CONCLUSION 8: Non concur

When we prepared our draft report, the Secretary of Defense had not yet approved full F/A-18 production for the Navy's light attack mission. This approval occurred one day before we transmitted our report for comment. In view of the Secretary's decision, we considered it appropriate to excise our conclusion and recommendation that a full production decision be delayed.

CONCLUSION 9: Concur

See p. 24.

RECOMMENDATION 1: Non Concur

See Conclusion 8.

MATTER FOR CONSIDERATION OF CONGRESS: Partially concur

See pp. 7, 8, and 14.

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