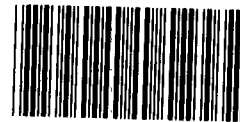


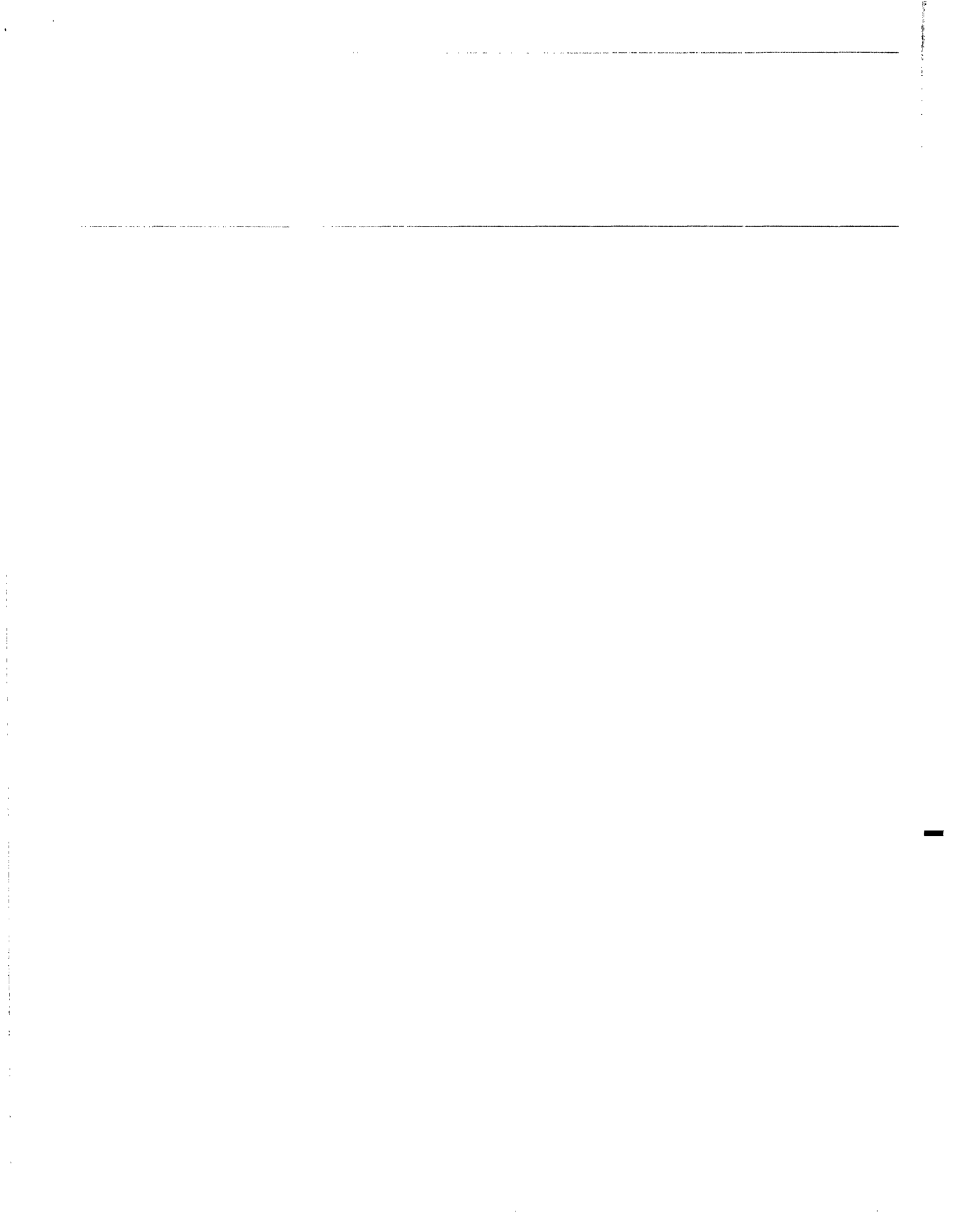
May 1992

AIR FORCE PROCUREMENT

Current Plans May Provide More Ground-Attack Capability Than Needed



146648



**National Security and
International Affairs Division**

B-248512

May 5, 1992

The Honorable Earl Hutto
Chairman, Subcommittee on Readiness
Committee on Armed Services
House of Representatives

Dear Mr. Chairman:

This report responds to your request that we review the Air Force's plans to equip aircraft for making ground attacks at night. Since 1981, the Air Force has spent \$3.1 billion to equip and support night capable aircraft, and it is planning to spend at least \$1 billion more. This report discusses the Air Force's procurement and modernization plans for night capable aircraft and the efforts to adjust those plans to reflect changes in the predicted threat and military budget. It also discusses plans to provide training in night capable aircraft.

Results in Brief

Air Force regulations require procurement plans to be revalidated when threats change. The Air Force nighttime ground attack plans were based on the Soviet and Warsaw Pact forces as the major threat to the United States. Although this threat has diminished significantly and U.S. forces and budgets are declining, the Air Force is planning to acquire even more night capable equipment than it said it needed to counter the Soviet threat. Other questionable aspects of the Air Force's planned procurement are (1) failing to consider total nighttime ground attack assets, (2) equipping hundreds of aircraft that will have 8 years remaining on a 22-year useful life, and (3) buying certain equipment, even though less expensive alternatives would have met most of the Air Force's requirements. Finally, the Tactical Air Command's plans for F-16 nighttime training are subjectively, rather than objectively, based and do not reflect possible environmental restrictions.

Background

The need for nighttime air-to-ground attack is based on military doctrine and the nature of the threat. Doctrine, in general terms, calls for U.S. forces to operate at night as in the day. Around the clock air-to-ground attacks in the recent Gulf War demonstrated the benefits of operating at night. The precise capability and force structure (number and types of aircraft) that the Air Force needs for night operation are primarily determined by analyzing the threat. The Air Force has had two plans for

acquiring night capability; neither has been revalidated as the threat has changed.

The first procurement plan dates back to 1982, when the Air Force had only about 70 aircraft capable of performing ground attack during nighttime and in bad weather. The Air Force stated then that 700 night capable aircraft would be needed to offset the numerical superiority of the Warsaw Pact countries. Consequently, it purchased a special navigation and targeting system, called Low-Altitude Navigation and Targeting Infrared System for Night (LANTIRN), which would enable a ground attack force to conduct its missions at night. LANTIRN was designed to provide high-resolution imagery and precision targeting for high-speed, low-altitude flight and to deliver air-to-ground weapons over any terrain at night or during limited visibility (e.g., smoke, dust, smog).

The Air Force expects the LANTIRN procurement will cost about \$3.8 billion, with delivery to be completed by 1994. This amount includes the costs of navigation and targeting devices, research and development, flight-test support, support equipment and spares, and contractor support. Funding has been approved for a total of 561 navigation devices, 506 targeting devices,¹ and 26 mobile repair facilities. As of January 1992, the contractor had delivered 533 navigation devices, 107 targeting devices, and 26 repair facilities, and the government had paid the contractor \$3.1 billion. The devices are being installed on newer (known as "Block 40") F-16s and all F-15Es to improve their nighttime air-to-ground effectiveness. The contractor delayed targeting device production for a year to permit additional research and development to improve the device.

The second procurement plan, dated in 1986, called for purchasing a new aircraft exclusively for close air support and battlefield air interdiction missions in the same high threat environment used to justify the earlier plan. The new aircraft would have replaced the A-10, which was considered to be vulnerable in this environment. However, in November 1990 the Defense Acquisition Board directed the Air Force instead to modernize the older (known as "Block 30") F-16s and those A-10s assigned to these two types of missions. As a result, the Air Force revised the second plan to reflect the Board's direction and called for modernizing 300 F-16s by installing new equipment that would, among other things, greatly increase

¹The shortfall in targeting devices will be absorbed among the F-16 squadrons that will receive two fewer targeting devices than navigation devices, but the targeting devices can be transferred from one aircraft to another.

a pilot's ability to perform ground attacks at night.² The equipment would also enable the aircraft to (1) operate in poor weather and below the current minimally safe altitudes and (2) detect and destroy fixed and mobile targets.

The F-16 night attack equipment is still undergoing development and testing. The equipment consists of a head-steered, forward-looking infrared device with a helmet-mounted display and is estimated, by the Air Force, to cost \$2.1 million each. Delivery and installation are expected to begin in fiscal year 1997 and to be completed in approximately fiscal year 2000. The Air Force estimates total costs at \$540 million, including research and development, procurement, and purchase of support and training equipment. As of January 1992, the Air Force had spent \$12 million on development.

The Air Force also responded to the Board's direction by reviewing alternatives for improving nighttime devices for 140 A-10s. The Tactical Air Command has proposed that these improvements be achieved by mixing night vision goggles and forward-looking infrared devices from retired aircraft with changes to the A-10's cockpit display. However, the Air Force has not made a decision about the proposal, nor has it estimated the costs or sought funding.

The Air Force Wants to Equip More Aircraft Than Necessary

In 1982 the Air Force established the need for 700 night capable aircraft to counter the Warsaw Pact threat. Even though that threat has since significantly diminished and the Air Force budget has declined, the Air Force could, if allowed to proceed with its modernization plan, have nearly 1,000 night capable aircraft by the year 2000. Other questionable aspects of the planned procurement relate to considering the totality of night capable aircraft, equipping more aged aircraft, and purchasing more expensive equipment than necessary.

²Although the Air Force is planning to buy only 210 devices, it is modifying 300 aircraft to be capable of using them.

The Threat Has Diminished

With the demise of the Warsaw Pact and the breakup of the Soviet Union, the threat has greatly diminished, with significant implications for the U.S. military. The AirLand Battle Concept of 1981 was developed on the assumption of a U.S.-Soviet conflict. It focused on combat operations in central Europe against massive aggression by the Warsaw Pact countries. It was largely against this threat that the U.S. military was organized, equipped, and trained. However, defense and intelligence experts believe that such a conflict is now unlikely.

According to the 1991 Joint Military Net Assessment,³ with the dissolution of the Warsaw Pact and the decline of the former Soviet Union, regional threats of varying strength are becoming more likely. However, no remaining threat is expected to equal the former Soviet Union. In the opinion of a Defense Intelligence Agency official, the United States is no longer faced with a high-level threat, as was the case with the Soviet Union.

Air Force and Its Budget Are Decreasing

As the threat has declined, the Air Force has made significant cuts in the size of its forces. In the last 3 years, for example, it has begun to reduce its tactical forces from the equivalent of 37.6 wings⁴ to 26.5 wings. This effort should be completed by fiscal year 1995. Additionally, the purchasing power of the Air Force's budget has fallen 35 percent from its peak in fiscal year 1985 to fiscal year 1991, and it is expected to decline further. Further reductions in force structure are being debated.

Totality of Night Capable Aircraft

The Air Force's most recent procurement plan addresses equipping specific aircraft types for night capability rather than considering the total night capable force that would result from proposed procurements. By fiscal year 1994 the Air Force expects to have approximately 520 aircraft capable of night ground attack, which will be about 70 percent of the 700 aircraft it said was needed in 1982. During the mid 1980s the Air Force's objective was to grow to 40 tactical fighter wings. The most recent plan, if fully implemented, would add another 440 aircraft, resulting in

³This comprehensive military assessment was prepared in accordance with the National Defense Authorization Act for fiscal year 1989 and provided to Congress by the Secretary of Defense. It was prepared by the Chairman, Joint Chiefs of Staff, in coordination and consultation with the Military Service Chiefs of Staff, the commanders of the unified and specified commands, the U.S. Coast Guard, the intelligence community, and the Joint Staff.

⁴A tactical fighter wing is equivalent to 72 combat aircraft.

approximately 960 aircraft being night capable in a projected 26.5 tactical fighter wing force. (See table 1.)

Table 1: Approximate Number of Night Capable Combat Aircraft Projected in Fiscal Years 1994 and 2000

Aircraft type	Number
F-111F	70
F-117	40
F-15E	140
F-16 (Block 40)	270
Total aircraft in 1994	520
F-16 (Block 30)	300
A-10	140
Total aircraft in 2000	960

Equipping Aged Aircraft

A Tactical Air Command official stated the average age of the Block 30 F-16s that are planned for night capable modification is about 6 years. Since modifications to them are scheduled to be made from fiscal years 1995 to 2000, some of the F-16s will be almost 14 years old when they are modified. Based on the Air Force's estimate that an F-16 has 22 years of useful life, some F-16s will have 8 years of service life remaining after they are modified. A Tactical Air Force official stated the A-10s now range in age from 10 to 16 years.

Purchasing More Expensive Equipment

For the F-16s, the Air Force selected a head-steered system that is estimated to cost \$2.1 million per unit, even though less expensive alternatives exist that could have met most requirements. This system is still in the conceptual phase, requiring further research and development, and may not be available until fiscal year 1997. An existing fixed forward infrared device would have met most requirements at about half the unit cost of the head-steered infrared system. An Air Force official stated that the head-steered infrared system will provide a wider field of view than the fixed forward infrared device. According to a Marine Corps official, however, Marine pilots achieve a wide field of view at night using night vision goggles. According to this same official, while Marine pilots use night vision goggles together with forward looking infrared systems, goggles alone would enhance an experienced pilot's capability to perform close air support at low altitudes at night.

Air Force Nighttime Training Plans May Not Be Achievable

The Tactical Air Command has proposed a significant increase in the number of training flights that F-16 pilots should perform at night to attain proficiency with the new LANTIRN equipment. It also expects to increase training flights for the older F-16s and A-10s when they are modified for night flying. However, the Tactical Air Command's process for determining the required number of training flights continues to rely more upon a subjective consensus rather than on objective, empirical data. Moreover, these plans may be affected by environmental considerations that have limited or precluded training in the past.

Night Training Requirements for LANTIRN-Equipped F-16s Are Increasing

F-16 nighttime training requirements for pilots have significantly increased since the introduction of LANTIRN. Non-LANTIRN equipped F-16 wings fly about 800 night sorties annually. With the introduction of LANTIRN, night training sorties were proposed to increase to 2,600 per wing annually. According to a Tactical Air Command official, this requirement later was set at 2,200 sorties because of environmental considerations.

The Command recently has proposed an increase in the annual LANTIRN training requirements to 3,200 sorties. The 45-percent increase stems from the Command's recognition of night flying as a primary mission capability rather than only an additional capability.

According to Command officials, they have not yet begun developing training plans for the F-16s and A-10s that are to be modified for night close air support and battlefield air interdiction. However, according to these officials, they expect increases in nighttime flights for these aircraft as well, but they will not be able to determine the amount of those increases until the Air Force chooses the specific night capable devices to be used on these aircraft.

Adequacy of Training Requirements Cannot Be Evaluated

The nighttime training requirement for LANTIRN-equipped aircraft is based on a subjective consensus. In earlier reports,⁵ we stated that the Tactical Air Command based its training requirements largely on the opinion of its pilot community and recommended that the Command determine such needs in a more objective fashion, using empirical data. The Command agreed and studied the feasibility of quantifying training

⁵Aircrew Training: Tactical Air Command and Strategic Air Command Flying Hour Programs (GAO/NSIAD-86-192BR, Sept. 30, 1986) and Aircrew Training: Developing Objective Data to Support Flying Hour Programs (GAO/NSIAD-89-99, Mar. 9, 1989).

needs for F-15 and F-16 pilots. According to Command officials, in 1990 the Command stopped developing an objective system due to the high cost of assembling data, and, therefore, the Command's method of establishing the nighttime training requirement of LANTIRN-equipped aircraft continues to follow a largely subjective approach. Thus, we could not evaluate the adequacy of the Air Force's training plans for nighttime ground attacks by LANTIRN-equipped aircraft.

Environmental Considerations May Limit or Preclude Nighttime Training

The ability to accomplish planned training is questionable because the Air Force has already had to limit its night flights at certain times in some areas, and at least one foreign government has restricted nighttime training flights by the Air Force. The Air Force is required to assess the environmental impact of its most recent LANTIRN training plan, but the environmental assessments are not complete. Consequently, the training plan may not be realistic, and pilot proficiency on the LANTIRN-equipped F-16s could be affected. Plans to increase nighttime flights for the F-16s and A-10s to be modified will likely face the same constraints.

The environmental impact analysis process already has resulted in the Air Force limiting its night training flights to minimize the effect on the environment. For example, an environmental assessment was conducted for Hill Air Force Base in Utah to determine if the initial LANTIRN training plan, which envisioned about 2,600 nighttime training sorties, could be accomplished. The assessment, according to Tactical Air Command officials, took 3 years to complete and resulted in the Air Force reducing the requested nighttime training flights from about 2,600 to the 2,200 that could be completed prior to 10:00 p.m.

The Tactical Air Command has completed its most recent LANTIRN training plan before completing environmental assessments, despite regulations requiring timely consideration of the environmental impact. Until these assessments are completed, the new training plan cannot be implemented. Therefore, implementation of the proposed increase from 2,200 to 3,200 annual LANTIRN training flights could be postponed as much as 2 years while the assessments are completed, which could then result in a decision not to implement the proposed increase. The effect of public concern about nighttime noise is more serious in some other countries. For example, the government of Germany has prohibited nighttime flying by the Air Force.

Recommendations

We recommend that the Secretary of the Air Force

- not implement the plan to procure close air support night attack capability for the F-16s and A-10s until the Air Force modifies the plan to incorporate (1) the current and future threats, (2) the totality of the force structure and nighttime ground attack capabilities to defeat that threat, and (3) the least expensive types of night capable equipment it needs to provide those capabilities;
- ensure that the Tactical Air Command establishes a process that, through objective, detailed analysis of empirical data, determines the minimum number of nighttime flights within environmental constraints needed to attain proficiency with the equipment for ground attack operations; and
- ensure that bases that will acquire night capable aircraft initiate environmental assessments early in the process of developing training plans so that these plans can be based on the number of flights that pilots both need and can perform.

Agency Comments

To meet the Committee's requested reporting time frames, we did not obtain official comments from the Department of Defense (DOD). However, we provided a draft of this report to Air Force and DOD program officials and met with them to obtain their views. They generally agreed with the information presented but did not comment on the recommendations. We have incorporated their specific comments where appropriate throughout the report.

Scope and Methodology

Our data gathering and analysis focused on determining the extent to which the Air Force's plans for procuring night capability and for training with that capability were current, developed in compliance with regulations, and realistic in terms of relevant constraints. We interviewed personnel and obtained documents at the Under Secretary of Defense for Environmental Issues, Office of Program Analysis and Evaluation, and Defense Acquisition Board in the Office of the Secretary of Defense; Joint Requirements Oversight Council; Air Force Headquarters; and Defense Intelligence Agency all in the Washington, D.C. area.

We also interviewed personnel at the Training and Doctrine Command, Fort Monroe, Virginia; the Office of the Commander in Chief of the Atlantic Fleet and the Atlantic Fleet Marine Force at the Norfolk, Naval Base, Virginia; the Tactical Air Command and the Air-Land Forces Application Agency, Langley Air Force Base, Virginia; the Combined Arms Command,

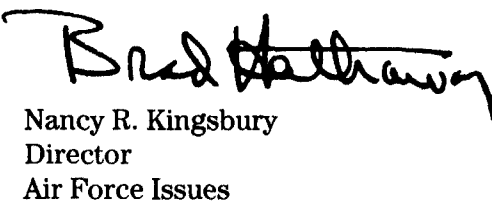
Fort Leavenworth, Kansas; the LANTIRN Systems Program Office and F-16 Program Management Office, Wright-Patterson Air Force Base, Ohio; and the following fighter wings – the 4th (F-15Es), Seymour Johnson Air Force Base, North Carolina; the 388th (Block-40 F-16s), Hill Air Force Base, Utah; and the 354th (A-10s), Myrtle Beach Air Force Base, South Carolina.

We conducted our work between April 1991 and February 1992 in accordance with generally accepted government auditing standards. The precise number of aircraft with specific future capabilities is not known with certainty. Therefore, the numbers shown in table 1 are approximate, but they correspond closely to cumulative totals after currently planned procurements.

We are sending copies of this report to the Chairmen, Senate Committees on Armed Services, on Appropriations, and on Governmental Affairs and House Committees on Appropriations and on Government Operations; the Secretaries of Defense, the Army, the Navy, and the Air Force; and the Director, Office of Management and Budget.

Please contact me at (202) 275-4268 if you or your staff have any questions concerning this report. The major contributors to this report are listed in appendix I.

Sincerely yours,


for Nancy R. Kingsbury
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