

**Audit**



**Report**

OFFICE OF THE INSPECTOR GENERAL

ACQUISITION OF THE AC-130U GUNSHIP TRAINER

Report No. 96-196

July 18, 1996

**Department of Defense**

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### **Acronyms**

AFSOC	Air Force Special Operations Command
RDT&E	Research, Development, Test, and Evaluation
SOF	Special Operations Forces
STRICOM	Simulation, Training, and Instrumentation Command
USSOCOM	U.S. Special Operations Command



**INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202-2884**



Report No. 96-196

July 18, 1996

**MEMORANDUM FOR UNDERSECRETARY OF DEFENSE FOR ACQUISITION  
AND TECHNOLOGY  
COMMANDER IN CHIEF, U.S. SPECIAL OPERATIONS  
COMMAND  
ASSISTANT SECRETARY OF THE AIR FORCE  
(FINANCIAL MANAGEMENT AND COMPTROLLER)**

**SUBJECT: Audit of the Acquisition of the AC-130U Gunship Trainer  
(Project No. 6AD-8008)**

## **Introduction**

We are providing this report for your information and use. We performed the audit in response to a DoD Hotline complaint received during field work for our audit of "Requirements Planning, Development, Test and Evaluation, and Impact on Readiness of Training Simulators and Devices," Project No. 5AB-0070. In January 1996, the U.S. Special Operations Command (USSOCOM) Acquisition Executive approved an acquisition strategy to conduct a testbed effort of a portion of the AC-130U Gunship Trainer. The testbed effort would be conducted by the Army Simulation, Training, and Instrumentation Command (STRICOM) and would be followed by full and open competition for procurement of a full-up trainer. Research, Development, Test, and Evaluation (RDT&E) and Production costs for the AC-130U Gunship Trainer were estimated at \$71.5 million from March 1996 through November 2000.

The following allegations were identified in the Hotline complaint.

- o The planned acquisition strategy for the trainer may circumvent full and open competition.
- o Because operational requirements were adequately defined, the need for a prototype or testbed effort was not justified.
- o The funding profile was not appropriate for the planned acquisition strategy. As a result, potential funding violations existed.
- o Defined operational requirements may not meet user needs.

## **Audit Results**

The allegations were not substantiated. At the time of the audit, USSOCOM developed an acquisition strategy that appeared to be effective and efficient. Further, the documentation we reviewed did not support the allegation that the

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acquisition strategy violated competition or funding requirements. Finally, the planned acquisition strategy provided reasonable assurance that defined operational requirements for the AC-130U Gunship Trainer will meet user needs.

## **Audit Objectives**

To address the four allegations, our three audit objectives were to:

- o evaluate the efficiency and effectiveness of the planned acquisition strategy,
- o determine compliance with funding requirements, and
- o determine whether defined operational requirements met user needs.

## **Scope and Methodology**

**Scope and Methodology.** The scope of our audit was limited specifically to the Hotline allegations regarding the acquisition of the AC-130U Gunship Trainer. We, therefore, did not review the management control program.

We reviewed documentation relating to the acquisition of the AC-130U Gunship Trainer and the Special Operations Forces (SOF) Aircrew Training System dated from August 1987 through April 1996 to accomplish our audit objectives. We reviewed acquisition strategy documentation, system requirements documentation, budget and cost data, milestone and planning schedules, and contract information. We also interviewed key personnel directly involved with the program.

**Audit Period, Standards, and Locations.** We performed this economy and efficiency audit from January through April 1996 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. The Audit Planning and Technical Support Directorate and the Office of General Counsel of the Inspector General, DoD, provided technical and legal advice. We did not use computer-processed data or statistical sampling procedures for this audit. Enclosure 1 lists the organizations we visited or contacted.

**Termination of Audit Work.** At the completion of the audit survey, we determined that no additional audit work was necessary.

## **Prior Reviews**

Since 1991, one review was conducted that is directly related to our audit. In August 1992, the Office of the Assistant Secretary of Defense for Special Operations and Low Intensity Conflict issued a program assessment at the request of the Senate Appropriations Subcommittee on Defense. The purpose of

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the review was to assess the content and viability of the SOF Aircrew Training System program. At the time of the assessment, the program was being restructured to address significant cost growth identified by the prime contractor, Loral Corporation. The basic contract included unexercised options for five training platforms, including the AC-130U Gunship Trainer. The program assessment found no basis on which to presume that the cost growth experienced on the basic contract would not be experienced on the remaining platforms. The assessment, therefore, recommended recompeting rather than exercising the remaining contract options. As of June 1993, only the recommendations for USSOCOM to review all future program requirements and to recompute the AC-130U Gunship option remained incomplete. The AC-130U Gunship Trainer planned acquisition strategy addresses those recommendations.

## **Audit Background**

In August 1987, SOF identified the need to provide integrated, ground-based aircrew and maintenance training to support various weapon systems, including the AC-130U Gunship. The Air Force Special Operations Command (AFSOC) will operate the highly integrated AC-130U aircraft to provide surgical firepower, night and adverse weather operations, and extended loiter time on target in SOF and conventional roles. Effective coordination among the 13 crew members using sensors, mission computers, and weapons is critical to the successful employment of the AC-130U Gunship. Particularly critical is the coordination of the aircrew within the Battle Management Center. The Battle Management Center consists of the All Level Light Television, Infrared Detection Set, Navigator, Fire Control Officer, and Electronic Warfare Officer stations.

In July 1990, Loral Corporation was awarded a contract modification to design and produce the SOF Aircrew Training System. The Training Systems Product Group, Aeronautical Systems Center, managed the program. The basic contract provided for the development of the MC-130E/H Talon weapons system trainer and included contract options to produce five additional SOF aircrew training systems. One contract option was to develop the AC-130U Gunship Trainer. The contractor identified significant cost growth that resulted in a restructure of the program. Because of the cost growth and schedule delays on the SOF Aircrew Training System contract, the development of the AC-130U Gunship Trainer was delayed. To meet initial operational capability in March 1996, AFSOC conducted training of initial crews on grounded aircraft.

At the Milestone I Decision in October 1995, the USSOCOM Acquisition Executive decided to acquire the AC-130U Gunship Trainer independent of the SOF Aircrew Training System contract. At that time, USSOCOM proposed to conduct a testbed effort of a portion of the AC-130U Gunship Trainer through the Air Force Armstrong Laboratory, followed by competitive procurement and integration of a full-up avionics and maintenance trainer. In a telephone conversation with the USSOCOM Acquisition Executive in December 1995, the Principal Deputy Assistant Secretary of the Air Force for Acquisition and Management decided not to allow Armstrong Laboratory to conduct the testbed

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effort because of a decrease in laboratory personnel. The Air Force was, however, prepared to manage the acquisition with immediate full and open competition.

In January 1996, the USSOCOM Acquisition Executive approved an acquisition strategy to acquire the AC-130U Gunship in two phases. The first phase involves a testbed effort managed by STRICOM to design, build, and test a prototype of the Navigator/Fire Control Officer portion of the AC-130U Gunship Trainer and will be accomplished under an existing contract without full and open competition. The second phase uses results from the testbed effort to award a new contract for the procurement and integration of a full-up avionics and maintenance trainer through full and open competition. The full-up trainer will consist of a Battle Management Center and flight deck.

## **Discussion**

Our audit did not substantiate the four allegations. At the time of the audit, the USSOCOM planned strategy to acquire the AC-130U Gunship Trainer was viable. In implementing the acquisition strategy, we did not identify any indication that USSOCOM violated competition or funding requirements. Finally, the planned acquisition strategy provides reasonable assurance that operational needs will be met.

**Acquisition Strategy.** The planned acquisition strategy was reasonable and appeared to be efficient and effective. Also, the documentation we reviewed did not support the allegation that the acquisition strategy violated competition requirements of the Federal Acquisition Regulation, part 6, "Competition Requirements."

**Army STRICOM.** To avoid schedule delays and cost overruns experienced on the original contract, the USSOCOM Acquisition Executive decided to acquire the AC-130U Gunship Trainer separately from the SOF Aircrew Training System program. The two primary alternatives were to conduct a testbed effort of the Navigation/Fire Control Officer portion of the trainer through the Army STRICOM or to procure a full-up trainer through immediate full and open competition managed by Air Force. Neither strategy would meet the initial operational capability of June 1997 or full operational capability of June 1999 originally desired by AFSOC. Also, both strategies would require adjustments to the existing funding profile.

In January 1996, the USSOCOM Acquisition Executive decided to acquire the trainer through Army STRICOM to take advantage of the organization's expertise in acquiring and developing simulation training devices. Also, STRICOM had a contract with Lockheed-Martin Company that provided an efficient means to begin the testbed effort as early as March 1996. By implementing the planned acquisition strategy, AFSOC expects to have interim training capability by September 1997 and full operational capability by November 2000.

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**Prototype of the Navigator/Fire Control Officer Station.** A key part of the planned acquisition strategy involves building a prototype of the Navigator/Fire Control Officer Station of the AC-130U Gunship. In general, prototyping is an acceptable and recommended method to acquire software-intensive systems and to reduce program risk and cost. The DoD Directive 5000.1, "Defense Acquisition," March 15, 1996, encourages the use of non-traditional acquisition techniques such as prototyping to reduce the time, resources, and risks of the acquisition process and to increase the quality of the systems being acquired.

The Navigator/Fire Control Officer Station of the Battle Management Center, the most software-intensive and complex portion of the AC-130U Gunship, is a training priority. Representatives of USSOCOM and AFSOC agreed that to effectively procure a full-up trainer, a testbed effort was necessary to more adequately define the level of sensor fidelity required to effectively train aircrews. The testbed effort was also needed to finalize requirements for data base content and facilitate the integration of trainer functions. Accurately defining those requirements up front will reduce the risk of cost overruns when the full-up Battle Management Center and flight deck are procured. Specifically, USSOCOM will not be locked into a long-term contract with changing requirements.

**Full and Open Competition.** The documentation we reviewed did not support the conclusion that the acquisition strategy violated competition requirements of the Federal Acquisition Regulation, part 6. In March 1996, STRICOM, as Program Manager for the Navigator/Fire Control Officer testbed effort, issued a properly negotiated delivery order against the Advanced Distributed Simulation Technology II contract. The basic contract was negotiated and competitively awarded to Lockheed-Martin Company in October 1995. The effort to build a Navigator/Fire Control Officer testbed was within the scope of the Advanced Distributed Simulation Technology II contract, which provides for Feasibility Analysis and Proof of Principle effort to expand the use of Distributed Interactive Simulation. Distributed Interactive Simulation is the creation of the synthetic environment through the linkage of constructive, virtual, and live simulation. Therefore, STRICOM properly executed the delivery order against the Advanced Distributed Simulation Technology II contract.

**Viability of the Funding Profile.** The funding profile was originally established to support the AC-130U Gunship option on the original SOF Aircrew Training Systems contract. This funding profile assumed that certain Research and Development efforts conducted on the basic contract for the MC-130E/H Trainer could be applied to the AC-130U Gunship Trainer. While the funding profile may not be ideal for the acquisition of the AC-130U Gunship Trainer, we found no indication that USSOCOM violated full funding requirements, misappropriated funds, or violated the Antideficiency Act. The table shows required funding for the acquisition of the AC-130U Gunship Trainer.

**Required Funding for the AC-130U Gunship Trainer**  
(as of February 1996)  
(\$ millions)

Costs	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	Total Costs
Total RDT&E	1.29	7.96	10.05	5.97	2.00	0.90	28.17
Total Procurement	<u>18.85</u>	<u>0.00</u>	<u>0.00</u>	<u>24.45</u>	<u>0.00</u>	<u>0.00</u>	<u>43.30</u>
<b>Total</b>	<b>20.14</b>	<b>7.96</b>	<b>10.05</b>	<b>30.42</b>	<b>2.00</b>	<b>0.90</b>	<b>71.47</b>

**Full Funding Requirements.** The planned acquisition strategy did not violate full funding requirements. The DoD Directive 7200.4, "Full Funding of DoD Procurement Programs," September 6, 1983, defines full funding as: "At the time of contract award, funds are available to cover the total estimated cost to deliver the contract quantity of complete, militarily usable items. If a future-year appropriation is required for delivery of the end items, the contract is not fully funded."

At the time of audit, USSOCOM had obligated \$1.1 million in RDT&E funds and \$9.4 million in Procurement funds in support of the testbed effort. The amount obligated fell within the amount authorized. Because USSOCOM must request an additional \$19.3 million (for the second phase effort) in RDT&E funds for the FY 1998 Program Objectives Memorandum, the program may need to be rescoped if Congress does not appropriate the requested funds. However, the various stations of the trainer are planned to function as separate and usable end items and will provide training capability if the program were rescoped because of lack of funds.

**The Purpose Statute.** The Purpose Statute, the United States Code, title 31, section 1301 (31 U.S.C. 1301), refers to the application of monies appropriated by Congress and states that funds may be used only for the programs and purposes for which the appropriation is made. The planned acquisition strategy used Line Replaceable Units to construct the prototype. Line Replaceable Units are parts specifically designed to be removed and replaced on operational aircraft. In FY 1996, \$18.85 million in Procurement funds will be used to procure the Line Replaceable Units while \$1.29 million in RDT&E funds will be used for software integration support.

If the testbed effort is successful, the resulting prototype will be used as a part-task trainer until the full-up avionics and maintenance trainer is completed. After the full-up trainer is completed, the testbed will either be retained and used as a part-task trainer or will be dismantled. If dismantled, the Line Replaceable Units will be returned to the AC-130U program to be used as spare parts for the aircraft.

The DoD 7000.14-R, Financial Management Regulation, volume 2A, chapter 1, supports the existing funding profile. It states that:

Articles . . . of types regularly procured to meet established general requirements, such as operational training, operational use, or inventory which are assigned or allocated on a priority basis for use in

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support of approved R&D [Research and Development] programs and which are not consumed in testing, may be financed by Procurement or Operational Maintenance appropriations. In addition, items which can be made available on a priority basis from existing inventory will be reassigned for use in R&D test and evaluation programs without reimbursement. However, all items expected to be consumed in R&D test and evaluation will be financed by RDT&E appropriations.

Because the Line Replaceable Units will either be used as an end product as a part-task trainer or will be returned for operational use as spares to the aircraft, the components will not be consumed in the testbed effort. Therefore, the planned use of RDT&E and Procurement funds was appropriate.

**The Antideficiency Act.** The Antideficiency Act, 31 U.S.C. 1341, prohibits any officer or employee of the United States Government from making or authorizing an expenditure or obligation exceeding an amount available in an appropriation or fund. Section 1517 of 31 U.S.C. prohibits an officer or employee of the United States Government from making or authorizing an expenditure or obligation exceeding an apportionment. We did not identify any indications of existing or potential violations.

**Requirements.** The planned acquisition strategy focused on user needs and operational requirements. Prototyping enables users to evaluate whether requirements are being met and encourages the users' involvement. The AFSOC, as the designated user representative, will be actively involved in identifying operational requirements. To support the acquisition, AFSOC provided one operational subject matter expert and one maintenance subject matter expert who will be continuously involved in the testbed effort. The subject matter experts will provide full-time support during the first and last 3 months of the testbed effort and periodic support during the interim months. Also, AFSOC representatives indicated overall satisfaction with the planned testbed effort. The planned acquisition strategy, therefore, provides reasonable assurance that user requirements will be met.

## **Management Comments**

We provided a draft of this report to the addressees June 14, 1996. Because this report contains no findings or recommendations, written comments were not required and none were received. Therefore, we are publishing this report in final form.

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We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Mr. Robert K. West, Audit Program Director, at (703) 604-8982 (DSN 664-8982) or Ms. Lynn Bartolotta, Acting Project Leader, at (703) 604-8992 (DSN 664-8992). Refer to the inside back cover for the list of audit team members. Enclosure 2 lists the distribution of this report.

*David K. Steensma*

David K. Steensma  
Deputy Assistant Inspector General  
for Auditing

Enclosures

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## **Organizations Visited or Contacted**

### **Office of the Secretary of Defense**

Office of the Under Secretary of Defense (Comptroller), Washington, DC  
Office of the Assistant Secretary of Defense (Special Operations/Low Intensity Conflict), Washington, DC

### **Department of the Air Force**

Office of the Deputy Assistant Secretary of the Air Force (Acquisition),  
Washington, DC  
Office of the Deputy Assistant Secretary of the Air Force (Contracting),  
Washington, DC  
Aeronautical Systems Center, Wright-Patterson Air Force Base, OH  
Air Force Special Operations Command, Hurlburt Field, FL

### **Department of the Army**

Simulation, Training, and Instrumentation Command, Orlando, FL

### **Unified Command**

U.S. Special Operations Command, MacDill Air Force Base, FL

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