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

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

JANUARY 31, 1985

B-217341

The Honorable Caspar W. Weinberger
The Secretary of Defense

Dear Mr. Secretary:

Subject: Separate Army and Air Force Airborne SINGARS
Programs May Be Uneconomical (GAO/NSIAD-85-50)

The Army's Single Channel Ground and Airborne Radio System (SINGARS) is the jam-resistant VHF-FM radio communications system providing the primary means of command and control for infantry, artillery, and armored units. It is the primary means of communication in the Division for the conduct of the land battle. The ground SINGARS which replaces the current VHF-FM combat net radios is being managed and procured for all services by the Army.

The Air Force and the Army have separate airborne SINGARS programs to develop and produce compatible radios for use on aircraft which communicate with ground units. The major difference between the two programs is the Air Force requires an AM band in addition to the FM band. This dual band capability is needed because space limitations on some aircraft preclude installing separate AM and FM radios.

According to SINGARS program officials of both services, the Army radio could be modified to satisfy Air Force requirements, primarily by adding an AM band. Estimates provided by program officials indicate that development and production cost savings by adopting this approach are potentially tens of millions of dollars. A high degree of commonality through a joint program should also result in maintenance and support cost savings.

CURRENT SINGARS PROGRAM

In 1982, to provide the airborne communications capability to talk with ground units, the Army entered a joint development project led by the Air Force to develop an airborne VHF-AM/FM capability for use by both services. In 1983, however, the Army directed that its ground and airborne radios be fielded concurrently. Because the Air Force development schedule would not support the Army's earlier deployment schedule, the Army withdrew from the joint project and began to develop a separate VHF-FM radio (without the AM band) based on the design of the ground radios. The ground radio is in production and the Army

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expects to award a production contract for their airborne radio in March 1985. About 70 percent of the Army airborne radio components will be identical to those in the ground radios.

In September 1984, the Air Force issued request for proposals to five contractors to develop a VHF-AM/FM airborne radio compatible with the Army's SINCGARS. The proposals were received in December 1984 and are being evaluated. Contract award is planned in April 1985. The Air Force SINCGARS program manager said that candidate designs will probably include a new radio based on the existing Air Force ARC-186 VHF-AM/FM radio as well as an AM/FM version of the Army's airborne radio.

Cost and schedule estimates

The cost and schedule estimates of the Army and the Air Force airborne radio programs are shown in the following chart. The estimated development costs for the Army and the Air Force airborne radios are \$13.7 million and \$32 million, respectively. Further, unit procurement costs are estimated at about \$17,500 for the Army radio and \$25,000 for the Air Force unit. The Army unit procurement cost estimate is lower than the Air Force estimate partly because of the commonality of components between its ground and airborne radios. Also, the Army procurement involves a larger production quantity and its equipment does not include unique Air Force requirements, including an AM band.

Airborne Radio Cost and Schedule Estimates^a

(millions in then-year dollars)

	<u>Army</u>	<u>Air Force</u>
Quantity	13,821	3,135
Cost:		
Research and development	\$ 13.7	\$ 32.0
Procurement ^b	232.0	77.8
Unit total procurement cost ^b	.0175	.025
Schedule:		
Production contract award	03/85	04/87
Initial operational capability	08/87	03/87 ^c

^aCost and schedule estimates are based on current program estimates and are subject to revision.

^bProcurement and unit procurement cost estimates exclude costs for such items as antennas, installation kits, and government supplied security devices.

^cThe Air Force schedule does not specify dates for initial operational capability. The date shown is for initial delivery of radios to the Air Force.

CURRENT ESTIMATES INDICATE A
CONSOLIDATED PROGRAM WOULD HAVE
ECONOMICAL BENEFITS

Officials of the Army SINGARS program office, the Army's SINGARS contractor, and MITRE Corporation--a Federal Contract Research Center for the Air Force Electronic Systems Division--said that the Army radio could be modified to satisfy Air Force requirements. Air Force officials do not dispute this, but the program office has reservations about its benefits.

The Army program office estimated its development cost of \$13.7 million would be increased by at least \$3 million to incorporate Air Force requirements in the Army program as they existed when the Army and Air Force programs separated in 1983. The Air Force program manager, on the other hand, estimated this modification would cost between \$16 million and \$22 million. Comparing these ranges of development estimates with the \$32 million estimate for the separate Air Force development program would, accordingly, indicate that a consolidated program could save between \$10 million and \$29 million in development costs. Some of these savings, according to an Air Force program official, would result from using components common to the Army radio and a corresponding reduction in test and data requirements.

An Army program official estimated production of an Army radio with an AM capability would cost about \$19,250 per unit. Comparatively, the Air Force estimate for its own separate radio is about \$25,000 per unit. Since the Air Force plans to buy 3,135 radios, potential production savings of up to \$18 million could result from a consolidated program. These estimates are subject to revision as Air Force requirements are further defined and better cost estimates become available.

In addition to the potential development and production savings, deploying Army and Air Force radios with some component commonality would result in maintenance and support savings. Fewer unique spare parts would be required and a common repair depot could be used.

In October 1984, we met with officials of the two services and the Department of Defense (DOD) to discuss matters contained in this report. According to a DOD official, refined cost and requirements data was needed, but the official agreed that the potential benefits of reestablishing a joint program should be examined when proposals for the Air Force radio development are received and evaluated against the cost to modify the Army radio.

CONCLUSION

Reestablishing a joint program to satisfy both Army and Air Force airborne VHF radio requirements appears to be feasible and may be more economical than separate programs. The Army radio could be modified to meet Air Force requirements and its use by the Air Force would capitalize on the development already made by the Army. It would also enable the use of components common to the airborne and ground radios.

During the next few months, when the proposals to develop the Air Force radio are available and the Army is awarding a production contract for its airborne radio, DOD will have an opportune time to examine more accurately the comparative cost benefits of reestablishing a joint program. We believe the Office of the Secretary of Defense (OSD) should become involved in the considerations and insure the Army and the Air Force capitalize on this opportunity. OSD should also act on the matters discussed in this report before the Army awards its production contract and the Air Force awards its development contract.

RECOMMENDATION TO THE SECRETARY
OF DEFENSE

We recommend that you evaluate the potential benefits of reestablishing a joint program to develop an airborne VHF radio to satisfy both Army and Air Force requirements. Also, unless the Air Force proposals unexpectedly include an offer that is clearly more favorable than the expected economies of a joint program, we recommend that you direct the Secretary of the Air Force to terminate its separate program and enter into an agreement with the Army to develop modifications to its airborne radio to meet Air Force requirements.

AGENCY COMMENTS
AND OUR EVALUATIONS

DOD provided official oral comments on a draft of this report on January 4, 1985. DOD concurred with our recommendation, but believes it is premature to quantify potential savings or to state that a joint program to modify the Army radio is the best solution to meet Air Force requirements. However, DOD believes that an opportune time will exist in the next few months to examine the benefits of reestablishing a joint program. As stated above, potential cost savings estimates for a joint program are subject to revision as better estimates become available. (See p. 3.)

OBJECTIVES, SCOPE, AND METHODOLOGY

We reviewed the Army's and the Air Force's SINCGARS development programs to determine (1) why the original joint program was discontinued and (2) if cost savings could be achieved by reestablishing a joint program. During our evaluation, we reviewed and compared airborne radio requirements, justifications, cost and schedule estimates, and acquisition plans. We did not do a technical review of the program nor did we independently verify reported cost estimates.

We did our review principally at the Army SINCGARS program office, Fort Monmouth, New Jersey, and the Air Force SINCGARS program office, Hanscom Air Force Base, Massachusetts. We interviewed officials of the Army and the Air Force SINCGARS programs, the Army's SINCGARS contractor, and the Air Force Electronic Systems Division's Federal Contract Research Center. We also discussed our concerns with DOD, Joint Chiefs of Staff, Army, and Air Force representatives responsible for the programs at the headquarters level.

We performed our review in accordance with generally accepted government auditing standards.

As you know, 31 U.S.C. 720 requires the head of a federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Secretaries of the Army and the Air Force. Copies are also being sent to the Chairmen of the above committees and the Chairmen, House and Senate Committees on Armed Services and Appropriations.

Sincerely yours,



Frank C. Conahan
Director